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All communications to be addressed:

"The Editor, Journal of Agriculture, Victoria Square, Adelaide."

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T. PASCOE,
Minister of Agriculture.

POINTS FOR PRODUCERS.

Annual Bureau Congress.

The thirty-second annual Congress of the Agricultural Bureau is to be held in Adelaide in September; and arrangements for the gathering are now in hand. In accordance with the usual custom, Branches have been asked to suggest subjects for consideration, and to submit papers to be read. Each Branch will have the opportunity of nominating two delegates to represent it. The agenda will be arranged by a committee appointed by the Advisory Board of Agriculture.

Southern District Conference.

Branches of the Agricultural Bureau situated in the Southern District will meet in conference at Port Elliot this year. The date set down for the gathering is August. Local arrangements are in the hands of Mr. Henry B. Welch, Hon. Secretary of the Port Elliot Branch.

Hawthorn.

An attempt is being made in New Zealand to control the growth of hawthorn. In a paper recently published by Mr. R. J. Tillyard, M.A., Sc.D., D.Sc., F.L.S., F.E.S., Entomologist and Chief of the Biological Department, Cawthorn Institute, Nelson, the writer set out to show that the hawthorn hedge was a very serious menace to the community, not only because it was the intermediate host of the dreaded fireblight, but also because it played the same part for a number of noxious insect pests. It was mentioned that the nearest relative to the hawthorn were trees belonging to the genus *Pyrus*, namely, the apple, the pear, the quince, and the mountain ash. The minimum action recommended was the close clipping of all hedges of hawthorn in such a way as to curtail their height to 4ft. or 5ft., and to prevent all possibility of flowering.

Winter School at Roseworthy Agricultural College.

Arrangements have been made for a short course of instruction for farmers to be held at Roseworthy Agricultural College during the winter. The course will open on Monday, July 18th, and continue during that and the succeeding week. A programme has been arranged, in which practical demonstrations and lectures by officers of the College staff and of the Department of Agriculture have been judiciously blended. The various Branches of the Agricultural Bureau throughout the State were invited to nominate, in order of preference, persons prepared to attend this course. The number of nominations received, however, was so great as to render it impossible

to accept all. It has been arranged, therefore, for the first nominee of each Branch to attend. The number of Branches which had sent in nominations up till the date of closing was 52. The majority of these nominated three members.

Lucerne Flea.

Very little is known about methods of eradicating the "spring-tails," of which class of insects the "lucerne flea" is one, and as they are very resistant to all of the ordinary insect-killing substances, they are difficult to control, says the Superintendent of Experimental Work (Mr. W. J. Spafford). The only practical way of keeping them in check appears to be to feed the crop down very closely with sheep, then cultivate and harrow the plot. This is most effective if the land is wet while the sheep are on it, and if the flock is large, so as to bore the plot quickly. Of the insecticides, gas-lime is the only one that gives much relief, and it must be applied with care in order not to injure the lucerne plants, and its good effects are not so lasting as the rapid feeding down with sheep when the soil is wet, followed immediately by cultivation.

Artificial Milk v. Cow's Milk.

The latest food substitute to be put forward is an artificial milk of vegetable origin, which, it is claimed, is not only cheaper than, but is superior to, the animal fluid in all properties, such as vitamins, fatty solids, casein, albumen, carbohydrates, sugar, and salts, while it has the same percentage of water as cow's milk, says the *Agricultural Gazette*. There is nothing particularly new about synthetic milk, however, for the natives of China have for centuries been using a vegetable milk made from the soya bean. The company producing the artificial milk in question is also using the soya beans, importing them from China for the purpose, though ultimately it is hoped to grow the bean in Canada, not only for making the milk, but also on account of its fertilising value for subsequent crops, such as wheat.

Friesian Cattle Club Herd Book.

A request has been received from the General Secretary of the Friesian Cattle Club of Australia that attention should be directed to the fact that it has been decided to open all four sections of the appendix of the Friesian Cattle Club's Herd Book until June 30th, 1921, to the breeders of South Australia, Western Australia, and Tasmania, because many breeders and dairymen in these three States have informed the club that they were not aware of the existence of the Herd Book at the time the appendix was closed. The opening of these appendices means that dairymen and breeders who have Friesian cattle of undoubted type can have these cattle registered in the appendix of the Herd Book, even though they are unable to supply complete pedigrees. Breeders in South Australia and Western Australia should write to the Branch Secretary, Mr. P. C. Manuel, 83, Currie Street, Adelaide, for further particulars.

INQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. The name and address of the inquirer must accompany each question. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

[Replies supplied by C. A. LOXTON, B.V.Sc., Government Veterinary Surgeon.]

"T. E. D. F.," Kingscote, reports cow three weeks ago punctured for blood. Matter is now exuding from wound.

Reply—The after-effects of puncturing the pannicle in the manner described are not unusual. Cleanse the wound first with warm water and soap. You can then apply weak iodine solution. Dress the wound daily.

Hon. Secretary Agricultural Bureau, Talia, asks treatment of wounds in the foot from nails.

Reply—If lameness results after removal of the nail, the horn should be cut away along the track of the nail, making a funnel-shaped opening to provide for the escape of discharge and to enable dressing of the foot to be carried out. Uncomplicated punctures of the foot require only disinfection of the wound and the necessary protection against further infection. The tetanus organism exists in the soil, and wounds of the foot are often followed by tetanus. For this reason the first dressing might be made with tincture of iodine, followed by antiseptic lotion, consisting of 5 per cent. carbolic acid. A syringe with a small nozzle is required, and the foot should be dressed daily. It should afterwards be enclosed in a piece of strong sacking to keep it clean. An occasional warm bran poultice is useful.

Hon. Secretary Agricultural Bureau, Whyte-Yarcowie, asks if farmers can be compelled to dip their sheep.

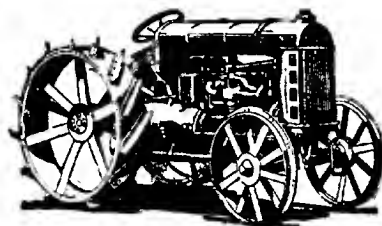
Reply—Every owner of any sheep in your district must dip his sheep in an arsenical dip during the period between the first day of September in every year and the end of the January following. Owners, however, are not compelled to dip on their own property.

"A. J. W.," Cygnet River, has aged mare with swollen hock; lump is hard and callous. Hock has been twice blistered.

Reply—Swellings of the hock joint such as you describe are often permanent in character. In any case the immediate effect of the blistering would be an increase in the amount of swelling. This, however, may gradually subside, and you may get more or less absorption as a result of the treatment. Turn her out for two or three months.

"E. W. D.," Terre, has horse with puffy swelling on the knee. Horse is very lame and limps badly.

Reply—Apply the following preparation:—Tincture of iodine, 4ozs.; Stockholm tar, 4ozs.; mix. Paint the swelling with this daily, but at longer intervals if the skin becomes tender. Do not apply to the head of the joint (back of knee). He will require some weeks' rest.



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"L. G. R.," Sandilands, reports draught mare, 12 years old, breathes very loudly and quickly. She also has occasional fits of coughing.

Reply—Your inquiry re aged grey mare with cough and disturbed breathing has been referred to me. She appears to have asthma. This is a chronic disease, but proper attention to diet will give her a certain amount of relief. She should be given food of the very best quality, and should not be worked immediately after a feed. Exertion on a full stomach aggravates the symptoms. Water her before feeding.

"A. L. J.," Naracoorte, has 10½-year-old gelding, short winded. After working for about a week, became very shaky on legs. Eyes appear to be sunk deep into the head.

Reply—The short breathing, staggering, and dulness while working in the team indicates only weakness or the effect of exertion on a sick animal. Put him out of work. Give him light, easily digested food, and see that his bowels are acting normally. Keep him under observation, and if there are any further developments I shall be glad to advise you.

"S. & M.," Loxton, has pony, rising five years, with bad cough and discharge from nostrils.

Reply—Put him out of work and give a laxative diet. Inhalations of steam are useful if the discharge is troublesome. For this purpose pour boiling water on bran placed in a sugar-bag, add a little eucalyptus oil or Friar's balsam. Allow him to inhale this for a quarter of an hour daily. Give him a teaspoonful of chlorate of potash twice daily in his drinking water.

Hon. Secretary Agricultural Bureau, Lake Wangary, reports cow the milk from which turns thick after being scalded.

Reply—Sweet curdling is not an uncommon fault in cow's milk, and may be due to some disturbance in the health of the animal, or to some affection of the udder. It also happens if the milk has not been suitably cared for after milking, absence of cleanliness, &c. The evening milk shows the greatest liability to the change. The formation of acid is only slight, hence the term sweet curdling. Immediate cooling of the milk is recommended. The addition of a small quantity of bicarbonate of soda, as much as will rest on the point of a knife, to a quart of milk, is useful. If due to digestive or udder trouble these require special treatment.

"R. S. T.," Rockleigh, asks recipe for lick for sheep.

Reply—A lick suitable for your purpose would be:—Common salt, 100lbs.; slacked lime, 10lbs.; bone meal, 10lbs.; sulphur, 3lbs.; sulphate of iron, ½lb.; mix thoroughly. The addition of molasses will make the lick more palatable. Put this out in wooden troughs in convenient places.

"A. F. T.," Georgetown, has light mare, weak in back and hindquarters; after lying down is unable to rise.

Reply—Put the mare in slings, and give laxative food and the following powders:—Strychnine sulph., 12grs.; powdered sugar, 2drams; mix. Divide into 24 powders. Give one powder on the tongue twice daily. This weakness of the hindquarters is sometimes very persistent, and you may have to keep her in slings for a considerable time. The condition of the mare may be due to some fodder contamination.

"J. L.," Percyton, asks for treatment to remove warts on cows' teats.

Reply—Acetic acid (glacial) is usually effective for the purpose, but must be used carefully. Try a pencil of silver nitrate. Damp the warts before applying.

"H. S.," Gladstone, has two horses receiving good feed, yet fail to put on condition.

Reply—It would be advisable to put them on a special ration. Give them half a pound of crushed oats in each feed, and gradually increase the amount as it seems advisable. Correct any tendency to constipation by laxative diet. Give Fowler's solution of arsenic, one tablespoonful twice daily, in the feed for a fortnight.

DEPARTMENTAL DOINGS.

AMONGST THE AGRICULTURISTS.

In the thought that it is of interest to the rural community, information respecting some of the activities (more especially those connected with the Agricultural Bureau system) of the officers of the Department of Agriculture is given below. No attempt is made to detail the month's operations of the Department; the subjoined particulars merely cover some of those cases in which officers have come into direct contact with the men on the land, either at meetings of Branches of the Bureau or on their individual holdings.

AGRICULTURE.

The Government Experimental Farms at Kybyholite and Booborowie were visited by the Director of Agriculture (Professor Arthur J. Perkins). The Director also visited Millicent, and rearranged experimental work under more satisfactory conditions, and placed the work definitely under the supervision of the local Branch of the Agricultural Bureau.

FARM BUILDINGS, ETC.

The Field Engineer (Mr. J. Paull) visited Messrs. Morphet Bros.'s holding on the River Murray, and discussed with the owners the erection of a 300-ton silo and a 4,000-gall. tank. Preliminary plans of alterations to buildings on Mr. J. H. Goyder's property at Long Flat were supplied. Mr. Paull also made a preliminary survey of an area of land at North Booborowie, which is devoted to lucerne growing, for the purpose of designing a drainage scheme. This scheme will affect the holdings of five landholders in the district.

Mr. N. A. Kunston, of Lameroo, was provided with plans of an implement shed.

DAIRYING.

The Dairy Expert (Mr. P. H. Suter) visited Murray Bridge and Farrell's Flat.

Mr. H. J. Apps has visited Murray Bridge, Gawler, Brentwood, Nuriootpa, Taplan, Redhill, and Peterborough. At Brentwood, Taplan, Murray Bridge, and Redhill he addressed the local Branches of the Agricultural Bureau. Various farms and dairy factories also were visited by this officer.

POULTRY.

The Poultry Expert (Mr. D. F. Laurie) visited Williamstown and addressed the local Women's Branch of the Agricultural Bureau.

GENERAL.

The Secretary of the Advisory Board (Mr. H. J. Finnis) visited Rockwood, and in company with the Superintendent of Experimental Work (Mr. W. J. Spafford), Cadell, at both of which places addresses were delivered, and new Branches of the Agricultural Bureau formed. Mr. F. Coleman addressed a meeting of the Black Springs Branch.

Clarendon and Cherry Gardens Branches were addressed by the Horticultural Inspector for the Southern District (Mr. C. H. Beaumont).



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CONFERENCE OF MINISTERS OF AGRICULTURE.

Held in the Education Block, Flinders Street, Adelaide, from
May 10th to May 12th, 1921.

OFFICIAL REPORT OF THE PROCEEDINGS.

Present—

New South Wales—Hon. W. F. Dunn (Minister of Agriculture).
Victoria—Hon. T. Livingston (Assistant Minister of Agriculture).
Queensland—Hon. W. N. Gillies (Acting Premier and Minister of
Agriculture).
Tasmania—Hon. J. Hayes (Minister of Agriculture).
Western Australia—Hon. F. T. Broun (Colonial Secretary).
South Australia—Hon. T. Pascoe (Minister of Agriculture).

OFFICERS OF THE DEPARTMENT OF AGRICULTURE.

New South Wales—Mr. Geo. Valder (Director of Agriculture), Mr.
L. T. McInnes (Dairy Expert).
Victoria—Dr. Cameron (Director of Agriculture), Mr. R. Crowe
(Superintendent of Exports), Mr. E. Meeking (Chief Inspector of
Fruit).
Queensland—Mr. E. G. Scriven (Under Secretary for Agriculture),
Mr. E. Graham (Dairy Expert).
Tasmania—Mr. L. A. Evans (Director of Agriculture), Mr. J. M.
Ward (Fruit Expert).
South Australia—Mr. W. L. Summers (Secretary Minister of Agri-
culture), Professor Perkins (Director of Agriculture), Mr. G. A. W.
Pope (General Manager of Produce Department), Mr. Geo. Quinn
(Horticultural Instructor).

OPENING ADDRESS.

His Excellency the Governor of South Australia (Sir Archibald
Weigall, K.C.M.G.), who was introduced by the Minister of Agri-
culture of South Australia (Hon. T. Pascoe, M.L.C.), opened the Con-
ference at 2.30 p.m.

ELECTION OF CHAIRMAN.

On the motion of the Hon. W. F. Dunn, seconded by the Hon. W. N.
Gillies, the Hon. T. Pascoe was appointed Chairman of the Conference.

DAILY REPORTS OF PROCEEDINGS.

It was resolved that a report of the proceedings of the Conference
be supplied to the press daily by the Secretary.

REVIEW OF RESOLUTIONS OF PREVIOUS CONFERENCE.

On the suggestion of the Chairman, a review of the resolutions of
the previous Conference was taken as read.

BULK HANDLING OF WHEAT.

On the motion of the Minister of Agriculture of New South Wales
it was resolved—

That the Conference affirms its belief in the desirability of bulk
handling, and that the States, as far as possible, arrive at uni-
formity regarding the disposal of the products generally.

DESTRUCTION OF SPARROWS NEAR WESTERN AUSTRALIAN BOUNDARY.

On the suggestion of the Chairman this subject was withdrawn, the Western Australian and South Australian Ministers having conferred on the subject.

LICENSING OF MEAT EXPORTERS.

Subject introduced by Victoria. Decided—

That it is desirable that uniform legislation be enacted by the various States for the licensing of meat exporters.

SUPPLIES OF MANURES.

The subject of the provision of adequate supplies of potash, salts, nitrates, and phosphates was introduced by Queensland. It was decided—

That the New South Wales Government be asked to prohibit the export from the Commonwealth of blood, bone, and flesh manures, and sulphate of ammonia, and all such other manures or any mixture thereof containing any of these three substances.

BONUS ON CURED PORK.

The question of asking the Federal Government to offer a bonus on the export of cured pork was introduced by South Australia, and after discussion withdrawn.

SUPERVISION AND GRADING OF PRIMARY PRODUCTS.

Various items on the agenda paper dealing with the legislation to provide for the supervision and examination of primary products were referred to the Dairy and Fruit Subcommittee, following the report of which it was resolved that—

- (a) Uniform legislation be brought in by each State to establish a system of licensing, supervising, examining, and grading as to quality and appearance of primary products, such as milk and milk products, fruit (both fresh and processed), poultry, eggs and egg pulp, and any other primary products that be deemed desirable to include, and that as far as practicable uniform grades be applied in all the States for each product.
- (b) Pending suggested legislation being passed, each State to make arrangements for inspection, grading, and issuing of certificates as to grading, &c.

It was further resolved that this Conference is of the opinion that the Commonwealth authorities should be approached and urged not to bring in any arbitrary regulations which would enforce a standard upon any canning factories in any State which would exclude them from operating in the world's markets.

UNIFORM LEGISLATION IN RESPECT OF INSECTICIDES, FERTILISERS, FUNGICIDES, ETC.

Several resolutions dealing with the above were submitted. Resolutions in respect of standards of bran and pollard by South Australia, and on the standardisation of fungicides and insecticides by Queensland, were withdrawn.

Resolution introduced by New South Wales affirming the desirableness of uniform legislation in regard to insecticides, fertilisers, wine adulteration, animal foods, &c., was carried.

BLACK LEAF FORTY.

- On the motion of Queensland it was resolved—
That the Commonwealth Government be asked to permit the entry of the insecticide known as "Black Leaf Forty" free of duty.

PURE SEED LEGISLATION.

- On the motion of New South Wales it was resolved—
That it is desirable that as far as practicable uniform pure seed legislation should be enacted in the different States.

STATE DAIRY ADVISORY COMMITTEES.

- On the motion of New South Wales it was resolved—
That Dairy Advisory Committees be established in the different States, and that an Interstate Committee be established to work with the State Committees.

COMMONWEALTH CONTROL OF DAIRY EXPORTS.

Mr. Livingstone read a telegram received from the Victorian Attorney-General, as follows:—

"Commonwealth authorities state Commonwealth Government has no control over exports of dairy produce."

The New South Wales Minister stated that this was generally in accordance with the view expressed by their Law Department. On the motion of New South Wales it was resolved—

That this Conference emphatically protests against the intervention of the Commonwealth Government in the dairying industry, and as experience has revealed that the examination of dairy produce intended for export as carried out by officers of the Commonwealth Government is of little educational value to the industry, and is needlessly costly, this Conference is strongly of the opinion that the practice should be discontinued, and the examination carried out by State officers, thereby obviating the existing duplication of activity.

PURE-BRED SHEEP—BREEDERS' GUARANTEE.

The subject of legislation to provide guarantee by vendors of pure-bred sheep introduced by Western Australia was withdrawn.

NEXT CONFERENCE.

Decided that the next Conference should be held in Perth in 1922.

UNIFORM STOCK AND STOCK DISEASES LEGISLATION.

After discussion in respect to several items on the agenda paper in respect to the above, it was resolved, on the motion of Mr. Pascoe—

That the chief officers of Stock and Quarantine Departments in each State should confer with a view to coming to some agreement to facilitate the exchange of stock from State to State without surrendering the rights of the State to protect its own herds.

EXAMINATION OF STALLIONS—REGISTRATION OF VETERINARY SURGEONS.

- On the motion of Queensland it was resolved—
That legislation should be enacted in all the States, similar to that already in force in Victoria and Tasmania, making provision for the examination of stallions and the registration of veterinary surgeons.

UNIFORM SYSTEM OF HERD TESTING PURE-BRED DAIRY CATTLE.

After consideration and recommendation with the Dairy Subcommittee on this subject, it was resolved—

That it is desirable to have uniformity of methods in all the States of the Commonwealth with respect to the official testing of pure-bred dairy herds.

CONFINING COMMONWEALTH DAIRY SERVICE TO RESEARCH WORK.

Item from Queensland on this subject was withdrawn.

SUPERVISION OF MANUFACTURE OF DAIRY PRODUCE.

Resolution from Queensland on this subject was referred to the Dairy Subcommittee, and after consideration of the Committee's report, the following resolution was carried:—

That this Conference favors all States, preferably through the medium of the representative Departments of Agriculture, should exercise a closer supervision over the quality of dairy produce manufactured for sale, and to see that no opportunity is lost to popularise the use of dairy foodstuffs, thereby leading to increased consumption of dairy foodstuffs in all markets.

REGISTRATION OF COLD STORAGE PREMISES.

On the motion of Queensland the following resolution was carried:—

That this Conference favors the compulsory registration of cold storage premises and stores intended for the storage of dairy products.

CERTIFICATES FOR DAIRY TESTERS AND GRADERS.

Resolutions from New South Wales and Queensland dealing with this subject were referred to the Dairy Subcommittee, and after consideration of the report of the Subcommittee, the following resolution was carried:—

- (a) That a uniform standard throughout Australia for certificates in milk and cream testing and grading be established.
- (b) That uniform certificates for persons engaged in milk and cream testing and grading at a factory be adopted.
- (c) That reciprocity be arranged between the States in the matter of certificates for milk and cream testing and grading, and that prompt action be taken to give effect to the foregoing.

UNIFORM MARKING OF DAIRY GLASSWARE.

Resolutions submitted by Queensland and New South Wales were referred to Dairy Subcommittee, and after consideration of Subcommittee's report the following resolution was carried:—

That it is desirable that uniform calibrations, markings, &c., in dairy glassware be adopted, and that the State Governments be requested to take prompt action to provide for uniform standards of dairy glassware, thermometers, &c., throughout Australia.

INTERSTATE TRADE IN DAIRY PRODUCE.

Victoria withdrew resolution dealing with request that the interstate trade in dairy produce should be allowed to revert to pre-war conditions.

Resolution tabled by Victoria that full particulars of dairy produce imported into each State from other States of the Commonwealth be furnished monthly by each State Agricultural Department for statistical purposes was negatived.

REFRIGERATED SPACE FOR INTERSTATE PRODUCE TRADE.

Resolutions from Victoria and New South Wales on this subject were referred to the Dairy Subcommittee, and after consideration of the report the following resolution was carried:—

That interstate shipping companies be requested to extend refrigerated accommodation on steamers for the carrying of dairy produce, fruit, &c., and that common action be taken to regulate the temperatures and conditions under which dairy produce is carried interstate and overseas.

THERMOGRAPHS IN REFRIGERATED CHAMBERS.

On the motion of Victoria the following resolution was carried:—

That the Commonwealth Government be requested to insert in the mail contracts a clause that approved thermographs be installed in all refrigerated chambers, and records to be available for inspection by Government representatives at the end of each voyage, and, further, that all interstate and overseas steamers carrying perishable produce be asked similarly to instal approved thermographs.

REDUCED FREIGHTS FOR REFRIGERATED PRODUCE.

On the motion of Victoria the following resolution was carried:—

That all shipping companies providing refrigerated space, including Commonwealth Shipping Line, be informed that this Conference feels it to be urgently necessary that a reduction in the cost of freight for refrigerated cargo of all kinds should be made in the interests alike of producers, exporters, and shipping companies.

ADMISSION OF SULPHURIC ACID FREE OF DUTY.

Motion by Queensland asking for the admission into the Commonwealth of sulphuric acid free of duty was withdrawn after discussion.

INSPECTION FEES FOR FRUIT AND VEGETABLES.

Resolution by Victoria suggesting increase in fees imposed for inspection of interstate imports of fruit, plants, &c., owing to the increased cost of inspection was discussed at considerable length, and finally withdrawn.

INTERCHANGE OF GRAPES BETWEEN STATES.

Resolution of New South Wales that 1912 Conference resolution for the free interchange of grapes from clean areas between those States

in which phylloxera exists be permitted, provided such grapes are accompanied by a certificate indicating their district of origin, was discussed and withdrawn.

Resolution from Victoria suggesting that grapes from areas free from phylloxera be permitted entry into other States was withdrawn.

INSPECTION AND TREATMENT OF FRUIT FROM STATES WHERE FRUIT FLY EXISTS.

Several resolutions dealing with the examination of fruit from States where fruit fly exists, and the picking over of slightly fly-infested fruit, were withdrawn after discussion.

FRUIT AND VEGETABLES IN SECOND-HAND CASES.

Resolution from Tasmania on this subject was withdrawn.

COMPULSORY GRADING OF EXPORT APPLES.

Resolution from South Australia on this subject was referred to the Fruit Subcommittee, and after consideration of report it was resolved—

That this Conference request the Commonwealth Government not to insist on color grading for export apples.

EXPORT MARKET FOR ORCHARD PRODUCTS.

Resolution from New South Wales and Victoria on the subject of trial shipments and also development of export markets for orchard products were considered, and the following resolution was carried:—

That the States should co-operate in making trial shipments of fresh and manufactured orchard products to the United Kingdom and elsewhere.

OVERSEA SHIPMENT OF ORANGES.

On the motion of South Australia the following resolution was carried:—

That this Conference urgently requests the Overseas Committee to provide refrigerated space during late June and early July this year for small trial shipments of oranges, preferably two shipments of approximately 2,000 cases each.

EXPERIMENTS IN KEEPING QUALITIES OF FRUIT IN COOL STORAGE.

On the motion of Victoria the following resolution was carried:—

That systematic investigations be made in each State to determine the factors which affect the keeping qualities of various fruits in cool storage, including investigations into the pre-cooling of fruit for export, the results of such investigations to be periodically published.

TIMBER FOR FRUIT CASES.

On the motion of New South Wales the following resolution was carried:—

That the Forestry Departments of the respective States be asked to interest themselves in providing a supply of timber for fruit cases.

NEW APPLE EXPORT CASES.

On the motion of New South Wales the following resolution was carried:—

That the Departments of Agriculture of the various States make tests of new apple export cases.

INSPECTION IN CONNECTION WITH PLANT DISEASES COMMON TO EXPORTING AND IMPORTING STATES.

Victoria introduced the question of less rigid inspection of imports likely to be affected by diseases common alike to the exporting and importing States, but the question was withdrawn.

PREFERENTIAL DUTIES ON EMPIRE PRIMARY PRODUCTS.

The Chairman read a communication from the Director of Irrigation in respect to the question of markets for Australian dried fruits, and after discussion it was resolved—

That the Premiers of each State be asked to urge upon the Commonwealth Government the advisableness of requesting the British Government, in the interests of the development of the Empire, and to encourage immigration within the Empire, to grant substantial preference in the matter of duties on primary products, including dried and preserved fruits produced within the Empire.

USE OF NEW BAGS FOR CARRIAGE OF POTATOES.

On the motion of New South Wales it was resolved—

That new bags only be used in future for the interstate carriage of potatoes.

SIZE OF PACKAGES OF IMPORTED PLANTS.

New South Wales raised the question of limitation of size of packages and bundles of plants imported into the different States, and on the motion of Queensland it was resolved—

That this Conference reaffirms the resolution of the 1908 and 1909 Conferences that packages of imported plants should not exceed 2cwts.

INTERSTATE FRUIT TRADE STATISTICS.

A resolution dealing with interdepartmental returns showing the monthly imports of fruit, plants, &c., was introduced by Victoria, but withdrawn.

VOTES OF THANKS.

Mr. Gillies moved a hearty vote of thanks to the Chairman and to the Secretary. He congratulated the Chairman on the expeditious manner in which the agenda paper had been dealt with, and expressed appreciation of the hospitality extended, not only to the members of the Conference, but to the lady visitors.

The motion was seconded by Mr. Hayes, and carried with acclamation.

Mr. Pascoe thanked the Ministers for their appreciative remarks.

EXPERIMENTAL FARM HARVEST REPORTS.

BOOBOROWIE EXPERIMENTAL FARM.

[By W. J. SPAFFORD, Superintendent of Experimental Work, and
E. A. BRISTOW, Manager.]

This farm is situated 120 miles north of Adelaide, and contains 1,344 acres, and has an altitude of 1,200ft. to 2,000ft. It consists of two blocks—one, the old North Booborowie homestead, is "high" land running to the highest point in Brown's Hill Range, and contains 1,046 acres; the other block (No. 478) contains 298 acres of comparatively level land, which in times of heavy rains is flooded by water from the Tumela Creek, and is situated two miles from the homestead. This farm is situated in the centre of a very good district, which contains land suitable for (1) cereal-growing, (2) lucerne-growing without irrigation, and (3) some really good grazing land not arable. Typical cereal-growing land and grazing land are available at this farm, but, unfortunately, we possess none of the first-class lucerne-growing land of which many thousands of acres are to be found in the district, although experiments in the growing and handling of this crop are urgently needed.

THE SEASON, 1920.

Until June but little rain had been received at Booborowie, and, although it is rather unusual in this particular district for the rains to be so long delayed, the season eventually proved one of the best for cereal crops that has been experienced since the land was subdivided for closer settlement. The good crops produced were accounted for by the fact that although only 2.48in. of rain fell for the first five months of the year, from then onwards good rains were experienced until the end of the year, and the crops had good weather for growth towards the end of the season, thus counteracting the ill-effects of a short growing period which usually follows a late start. As is to be seen in the first table, the rainfall for the year totalled 22.22in., with a "useful" rainfall of 19.57in., which is 5in. more than the average for the district.

Rainfall Distribution at Booborowie, 1900-1920.

	Means, 1900- 1914.	1915.	1916.	1917.	1918.	1919.	1920.	Means, 1900- 1920.
	In.	In.	In.	In.	In.	In.	In.	In.
January	0.45	0.49	0.31	1.33	0.59	0.23	0.22	0.47
February	0.49	—	0.04	0.91	0.52	2.56	—	0.54
March	0.91	—	0.19	1.11	0.62	0.05	0.51	0.77
April	1.01	1.59	0.58	0.30	1.40	1.35	0.79	1.01
May	1.38	2.37	1.63	4.22	2.10	2.42	0.96	1.64
June	2.39	3.40	4.01	2.31	2.06	2.25	4.27	2.58
July	1.90	1.56	3.36	3.00	1.70	1.36	1.88	1.97
August	1.77	2.22	4.42	4.15	2.99	2.01	3.52	2.13
September	2.14	3.34	1.86	2.25	0.39	2.09	2.57	2.13
October	1.55	1.22	2.41	4.03	1.21	1.44	2.11	1.70
November	1.14	0.25	2.01	0.76	0.13	0.85	2.47	1.17
December	0.86	0.70	1.59	2.33	0.16	1.78	1.02	1.02
Total	15.98	17.14	22.41	26.70	13.87	18.39	22.22	17.16
-Useful rainfall (April-November).	13.28	15.95	20.28	21.02	11.98	13.77	19.57	14.38

The total rainfall for the year and the "useful" rainfall are very high for the district, in each case being more than 5in. above the averages for the past 21 years, and at the same time the distribution of this "useful" rain remained almost ideal for the production of cereal crops. As the next table, which gives the distribution of the "useful" rainfall, clearly shows, the seeding rains were too light for the sowing of the seed "early", but from then on everything favored the crops:—

Distribution of "Useful" Rainfall, Booborowie, 1900-1920.

	1920. Inches.	Means, 1900-1920. Inches.
Seeding rains (April-May)	1.75	2.65
Winter rains (June-July)	6.15	4.55
Spring rains (August-October)	8.20	6.01
Early summer rains (November)	3.47	1.17
Total "useful" rain	19.57	14.38

CROPS.

The want of heavy rains at the ordinary seeding season delayed the sowing of the cereals, of which class practically all of the sown crops of the farm consist, but this delay proved rather beneficial, as the rains were sufficiently heavy to promote the germination of most of the weeds, and the general weather was good for weed killing, with the result that all fallowed land was well cleaned before the seed was sown. The

crops were very heavy, and much difficulty was experienced in harvesting some of them, but the grain collected at harvest time was clean.

Ensilage Crops.—A silo was erected at this farm during the year, and, as no receptacle for the manufacture of ensilage was available before, a special crop was not sown, the intention being that if the silo was constructed before the crops had passed the cutting stage, the most suitable one would be used. Field No. 14, which was left as pasture in 1919, was ploughed during the last few days of May, 1920, was harrowed on June 7th, and again on June 8th, and on June 8th 200lbs. of Calcutta oats were drilled in to the acre with 2cwts. superphosphate. The field was harrowed on June 9th, and the crop was rolled on August 19th. Despite the lateness of seeding this oat crop, the 10.22 acres, cut with the binder, yielded a crop, which, when chaffed and ensiled, totalled 90 tons of ensilage, and averaged 8 tons 16cwts. 14lbs. of ensilage per acre.

Hay Crops.—The usual practice of the farm was again followed this year, *i.e.*, some stubble land was seeded to oats for hay, but the intention was to secure the bulk of the hay from headlands of the fields carrying grain crops. The area of Calcutta oats sown on stubble land in Fields Nos. 7, 9A, and 23 only totalled about 30 acres, all of which was seeded at the rate of 2bush. of seed with 1cwt. of superphosphate per acre, the remaining 45 acres or so being parts of wheat crops grown on fallowed land with 2cwts. superphosphate per acre. The yields of hay secured from the various blocks are set out in the next table:—

Hay Yields, Booborowie, 1920.

Kind.	Field	Area.	Total			Yield		
	Grown. No.		T.	C.	L.	T.	C.	L.
Wheat headlands	4, 5	20.24	75	0	0	3	14	12
Wheat headlands	11, 12	19.62	60	0	0	3	1	13
Wheat headlands	9B	2.15	6	0	0	2	15	91
Calcutta oats	7	9.18	24	0	0	2	12	32
Wheat headlands	Exp. plots	3.89	10	0	0	2	11	46
Calcutta oats	23	17.53	44	0	0	2	10	22
Calcutta oats	9A	3.03	6	0	0	1	19	68
Farm average	—	75.64	225	0	0	2	19	55

The yields obtained, as seen above, are really good, even the oats on stubble land reaching from 2 tons per acre for the lowest yield to over 2½ tons per acre from the best yield, and the average for the season from 75.64 acres reached the very satisfactory return of a little below 3 tons of hay per acre. This season's crop now makes the mean return for cereal hay at Booborowie for the nine years—

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1912 to 1920—2 tons 2cwts. 37lbs. per acre, as the next table discloses:—

Hay Returns, Booborowie, 1912-1920.

Year.	Total Rainfall. In.	"Useful" Rainfall. In.	Area. Acres.	Total Yield.			Yield per Acre.		
				T.	C.	L.	T.	C.	L.
1912	15.50	13.20	70.00	132	5	0	1	18	88
1913	15.07	10.86	76.00	109	14	0	1	3	97
1914	9.76	7.79	—	Failure			—		
1915	17.14	15.95	52.27	144	15	0	2	15	43
1916	22.41	20.28	37.93	109	14	0	2	17	94
1917	26.70	21.02	58.43	198	19	0	3	8	11
1918	13.87	11.98	51.41	107	0	0	2	1	70
1919	18.39	13.77	75.75	117	0	0	1	10	100
1920	22.22	19.57	75.64	225	0	0	2	19	55
Means	17.90	14.94	—	—			2	2	37

Oat Crops.—Only a small area was seeded to oats for grain, and that in every case, including the crops in rotation-of-crops plots, on stubble land. Field No. 23, which carried a wheat crop in 1919, was ploughed between May 13th and 21st, immediately harrowed, and on May 21st a block was seeded with Scotch Grey oats, and on May 21st and 22nd a block with Calcutta oats, in each case at the rate of 2bush. of seed with 1ewt. superphosphate per acre. The grain received from the oat crops is shown in the table below, with the total and average return for the season:—

Oat Yields, Booborowie, 1920.

Variety.	Field Grown.	Area. Acres.	Total Yield.		Yield per Acre.
			Bush.	lbs.	
Calcutta	No. 23	5.72	265	16	46 16
Scotch Grey	No. 23	10.11	439	0	43 17
Scotch Grey	Exp.	3.41	139	4	40 32
Farm average	—	19.24	843	20	43 34

The yields were all good this season, and the average for the year—43bush. 34lbs. per acre—is the second highest secured at the farm since 1913, when the crop was first grown. The mean yield for oats, grown as a stubble crop, is now 29bush. 28lbs. per acre for the eight years—1913 to 1920—including the failure of 1914, and this average is to be seen in the following table, with the details of the annual crops.

Oat Returns, Booborowie, 1913-1920.

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield.		Yield per Acre. Bush. lbs.
	In.	In.		Bush. lbs.	Bush. lbs.	
1913	15.07	10.86	54.00	1,394	13	32 11
1914	9.76	7.79	—	Failure		—
1915	17.14	15.95	75.47	2,410	20	31 38
1916	22.41	20.28	4.23	138	33	32 33
1917	26.70	21.02	4.68	231	25	49 20
1918	13.87	11.98	31.93	863	27	27 2
1919	18.39	13.77	22.40	451	18	20 6
1920	22.22	19.57	19.24	843	20	43 34
Means	18.19	15.15	—	—	—	29 28

Only two varieties of oats have been grown continuously for the past few years, and their behavior in these conditions since 1916 is set out in the next table:—

Oat Varieties, Booborowie, 1916-1920.

Year.	Total Rainfall.	"Useful" Rainfall.	Scotch Grey.		Calcutta.		Farm Average.
	In.	In.	Bush. lbs.	Bush. lbs.	Bush. lbs.	Bush. lbs.	
1916	22.41	20.28	49 21	28 20	—	32 33	
1917	26.70	21.02	61 20	44 29	—	49 20	
1918	13.87	11.98	33 19	27 8	—	27 2	
1919	18.39	13.77	22 24	21 5	—	20 6	
1920	22.22	19.57	42 30	46 16	—	43 34	
Means	20.72	17.32	41 39	33 24	—	34 27	

Barley Crops.—Other than in Field No. 11 all barley was grown on stubble land. The stubbles of Fields Nos. 23 and 27 were ploughed up from the middle of May onwards, immediately harrowed, and then sown with 60lbs. Roseworthy Oregon barley and lewt. superphosphate to the acre. In Field No. 11 a small piece of fallowed land was seeded to barley to produce clean seed, as continually growing barley on stubble land soon renders the grain produced too dirty with other grains to use as seed. This block of barley made very strong rank growth, and was so heavy that it lodged to such an extent that it is very doubtful if 50 per cent. of the grain present was collected when the harvester was put in the crop. Considering the unsuitability of the harvesting weather for barley crops, the return secured—30bush. 37lbs. per acre—is quite satisfactory. Details of this year's barley crops are displayed in the next table:—

Barley Yields, Booborowie, 1920.

Variety.	Field Grown.	Area. Acres.	Total Yield.		Yield per Acre. Bush. lbs.
			Bush.	lbs.	
Roseworthy Oregon . . .	No. 23	12.77	512	9	40 5
Roseworthy Oregon . . .	No. 11	2.55	70	2	27 23
Roseworthy Oregon . . .	No. 27	16.98	436	31	25 36
Roseworthy Oregon . . .	Exp.	3.09	68	46	22 15
Farm average	—	35.39	1,087	38	30 37

This average yield of 30bush. 37lbs. per acre was just about equal to the mean yield of the previous five years, so its inclusion in the mean average yield for the farm—as shown below—has hardly affected the result.—

Barley Returns, Booborowie, 1915-1920.

Year.	Total Rainfall. In.	"Useful" Rainfall. In.	Area. Acres.	Total Yield. Bush. lbs.	Yield per Acre. Bush. lbs.
1915	17.14	15.95	3.09	108 26	35 6
1916	22.41	20.28	35.93	1,119 46	31 8
1917	26.70	21.02	23.65	914 26	38 33
1918	13.87	11.98	29.11	1,045 28	35 46
1919	18.39	13.77	32.58	501 1	15 19
1920	22.22	19.57	35.39	1,087 38	30 37
Means	20.12	17.09	—	—	31 8

Wheat Crops.—As usual, an assortment of wheat varieties was grown this season, and the effect of this testing-out of varieties is plainly seen in the table setting out the yields of the different kinds, for the best crop produced a yield of 46bush. 14lbs. per acre, whilst the poorest did not go higher than 21bush. 52lbs. per acre. The proving of "new" varieties is essentially one of the operations of an experimental farm, but it has the inevitable result of reducing the wheat yields considerably below what could be expected from proved varieties.

All wheat crops were grown on fallowed land, and the fields which carried these crops were treated as follows:—

Field No. 4.—This field carried a wheat crop in 1917, barley and oats in 1918, was ploughed between July 31st and August 5th, 1919, harrowed twice between August 30th and September 1st, cultivated at the end of September, the middle of November, and again before seeding. Between June 5th and 7th wheat varieties were drilled in at the rate of 75lbs. of seed with 2cwts. superphosphate per acre.

Field No. 5.—This field, which carried wheat in 1917, oats and barley in 1918, was ploughed between July 28th and 30th, 1919, harrowed twice on August 30th, cultivated the last week in September, the middle of November, and again before seeding. On May 29th wheats were drilled in at the rate of 75lbs. with 2cwts. superphosphate per acre.

Field No. 8A.—After having carried a wheat crop in 1918, this field was ploughed by August 6th, 1919, was harrowed twice on August 29th, cultivated on September 22nd, harrowed on October 15th, and cultivated before seeding. On May 25th, 75lbs. Federation wheat was drilled in with 2cwts. superphosphate per acre.

Field No. 9A.—This field produced a wheat crop in 1918, was ploughed on August 7th, 1919, harrowed on August 29th, cultivated on September 22nd, harrowed on October 16th, cultivated on November 14th, and again before seeding. On May 27th, 75lbs. Cadet wheat was drilled in with 2cwts superphosphate per acre.

Field No. 9B.—This field carried wheat in 1918, was ploughed between August 6th and 11th, 1919, cultivated by August 29th, harrowed on August 29th, and again on October 16th, cultivated on November 13th, and again just before seeding. On May 28th, wheats were drilled in at the rate of 75lbs. seed and 2cwts. superphosphate to the acre.

Field No. 11.—Crops of the cereals, wheat, oats, and barley were grown in this field in 1918, the land was ploughed between August 12th and 20th, 1919, harrowed on August 25th, again on the 26th, cultivated by September 25th, again by November 13th, and finally just before seeding. On June 8th and 9th wheats were drilled into this field at the rate of 75lbs. seed per acre with 2cwts. superphosphate.

Field No. 12.—This field carried wheat in 1918, was ploughed by August 20th, 1919, harrowed twice on August 30th, cultivated by September 28th, again by November 13th, and for the last time just before seeding. On June 10th and 11th, wheats were drilled in at the rate of 75lbs. seed with 2cwts. superphosphate per acre.

The yields of the wheat crops grown as described above, with the total and average yields for the season, will be found in the next table:—

Wheat Variety Yields, Boomerowie, 1920.

Variety.	Field Grown.	Area. Acres.	Total Yield. Bush. lbs.	Yield per Acre. Bush. lbs.
Major	Nos. 4, 5	0.70	32 22	46 14
Yandilla King	No. 5	2.04	83 54	41 8
Onas	No. 4	5.85	224 38	38 23
King's Red	No. 11	1.54	54 17	35 15
Queen Fan	No. 9B	5.08	178 54	35 13
Minister	No. 12	2.70	93 30	34 38
Marshall's No. 3	No. 5	2.70	90 49	33 38
Caliph	No. 12	2.02	67 34	33 27
Gluyas	No. 11	1.43	47 18	31 58
Crossbred 53	No. 4	2.85	82 54	29 5
Leak's Rustproof	No. 12	1.23	35 45	29 4
Federation	No. 8A	0.97	28 0	28 52
Crossbred 53	No. 9B	1.84	53 0	28 48
Cad	No. 11	0.27	7 25	27 28
Cadet	No. 9A	2.70	59 2	21 52
Federation	Exp.	24.87	838 17	33 42
Federation	Exp.	32.67	957 58	29 19
Farm average	—	91.51	2,935 37	32 5

The average wheat yield of 32bush. 5lbs. per acre is very satisfactory, particularly when it is made up of so many varieties of wheats, some of which have been harvested from a large number of comparatively small plots. As the table above shows, this average is made up from crops varying in yield from over 46bush. per acre to below 22bush. per acre, and the returns secured clearly show that it is quite on the board, if only two or three varieties were grown, to produce an average yield around 40bush. per acre in this district, in good seasons.

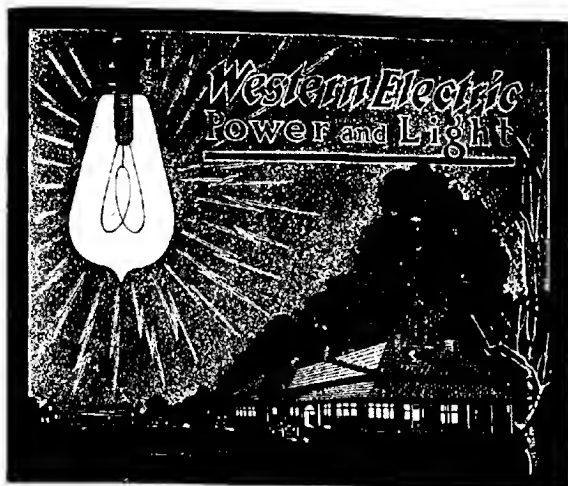
Of the varieties which have yielded above the farm average, Yandilla King, King's Red, Federation, and Marshall's No. 3 are old favorites, and are well known in most districts in the State; Queen Fan and Caliph are two Roseworthy Agricultural College wheats, yielding well and becoming popular in most of our wheat areas; Major and Onas are both wheats which produce heavy crops of grain in our "good" cereal districts, and on their behavior so far are promising of becoming increasingly popular in those districts to which they are suited; Minister is a comparatively "new" variety to this State, and to date is a very promising variety as a grain producer.

The table following sets out in detail the wheat crops grown each year since 1912, with the mean yield for the period:—

Wheat Returns, Booborowie, 1912-1920.

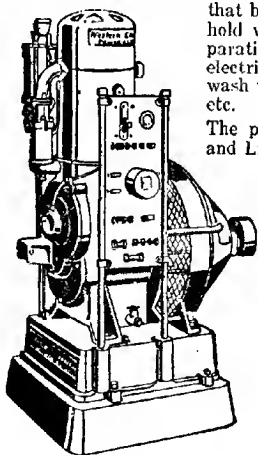
Year.	Total Rainfall. In.	"Useful" Rainfall. In.	Area. Acres.	Total Yield. Bush. lbs.	Yield per Acre. Bush. lbs.
1912	15.50	13.20	180.00	4,645 20	25 48
1913	15.07	10.86	388.75	6,611 53	17 0
1914	9.76	7.79	339.75	990 53	2 55
1915	17.14	15.95	284.28	7,765 2	27 19
1916	22.41	20.28	216.67	7,668 40	35 24
1917	26.70	21.02	153.22	4,984 30	32 32
1918	13.87	11.98	173.81	4,631 32	26 39
1919	18.39	13.77	113.84	3,041 15	26 43
1920	22 22	19.57	91.51	2,937 17	32 5
Means	17.90	14.94	—	—	25 10

The average yield of 25bush. 10lbs. per acre for the nine-year period is very satisfactory, but the remarkable feature of these wheat crops, which is to be seen in this table, is that seven of the nine have been above the average, and only in one season was the yield very much below the average. This clearly shows what a reliable and "safe" cereal growing district this is, particularly when compared to most of our other districts, for although many of them are good cereal-growing districts with profitable average yields, these averages are made up from yearly yields showing big variations above and below the average.



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The results secured from some of our main wheats for the past eight years are to be found in detail below:—

Yields of Wheat Varieties, Booborowie, 1913-1920.

Variety.	Means, 1913- 1915.		1916.	1917.	1918.	1919.	1920.	Means, 1916- 1920.	Means, 1918- 1920.
	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.
Yandilla King ...	16 41	36 46	28 37	31 49	30 28	41 8	33 46	34 28	
Federation	21 23	46 51	34 36	27 51	26 29	31 12	33 24	28 31	
Marshall's No. 3 ..	15 42	32 16	27 6	28 26	29 26	33 38	30 10	30 30	
Gluyas	16 12	15 19	34 13	25 18	31 15	31 58	27 39	29 30	
King's Red	17 42	27 58	28 15	18 2	23 53	35 15	26 41	25 43	
Onas	—	35 54	44 44	26 23	24 52	38 23	34 3	29 53	
Queen Fan	*35 46	29 17	34 27	25 50	24 6	35 13	29 47	28 23	
Caliph	—	27 38	25 21	21 26	31 14	33 27	27 49	28 42	
Minister	—	—	—	34 6	26 54	34 38	—	31 53	
Leak's Rustproof ..	—	—	—	24 0	29 39	29 4	—	27 34	
Crossbred 53	—	—	—	25 8	21 9	28 59	—	25 5	
Cadet	—	—	—	25 32	24 29	21 52	—	23 58	
Cad.	—	—	—	21 32	22 6	27 28	—	23 42	
Major	—	—	—	—	31 47	46 14	—	—	
Farm average	15 45	35 24	32 32	26 39	26 43	32 5	30 41	28 29	
Total rainfall	In. 13.99	In. 22.41	In. 26.70	In. 13.87	In. 18.39	In. 22.22	In. 20.72	In. 18.16	
"Useful" rainfall	11.53	20.28	21.02	11.98	13.77	19.57	17.32	15.11	

* 1915 only.

As is to be seen above, since 1916, the three well-known and much-tested varieties—Yandilla King, Federation, and Marshall's No. 3—are well to the fore, and the only recent introduction to compare with these; and, indeed, to exceed them, has been Onas. This wheat originated in South Australia—bred by Mr. F. Coleman, of Saddleworth—and after five years' trial at Booborowie it shows that it certainly should be grown much more extensively in districts with heavy loam soils and 16in. or more of annual rainfall, than is at present the case.

Some of the wheats now being grown at the farm have not been there long enough to come within the five years' average, so the returns over the past three seasons have been grouped together. During this period only three wheats have averaged over 30bush. per acre, and Yandilla King and Marshall's No. 3 are again included, the other variety being Minister. The period of trial has yet been rather short for this variety, but on present appearances Minister will prove a producer of big grain yields in good conditions.

PERMANENT EXPERIMENTAL PLOTS.

Instead of placing experimental plots in different fields each year, the policy of always using the same land for the various experiments

has been adopted, with the idea of eliminating residual effects of fertilisers or previous soil treatments, and is the only possible way to do accurate and correct agricultural experimental work.

BARE FALLOW-WHEAT EXPERIMENTS.

Various series of permanent experiments dealing with the growing of wheat on the bare fallow-wheat rotation, and covering manurial, cultivation, and depth of ploughing experiments, were mapped out in 1915, and carried their first crops in 1916. These plots are so arranged that one-half of each plot is fallowed each year, the other half being in crop, thus assuring a crop each year for each separate treatment. For the five seasons that these plots have been cropped Federation wheat was used on all plots.

Permanent Manurial Plots, Booborowie, 1916-20. Yield per Acre.

Plot.	Manuring per Acre.	1916. Bush. lbs.	1917. Bush. lbs.	1918. Bush. lbs.	1919. Bush. lbs.	1920. Bush. lbs.	Means, 1916-20. Bush. lbs.
1	½wt. superphosphate . . .	36 58	28 23	23 28	26 50	31 7	29 21
2	½wt. superphosphate . . .	38 57	28 14	34 27	29 3	29 52	31 7
3	2wts. superphosphate . . .	39 3	30 5	40 50	28 16	28 31	33 21
4	3wts. superphosphate . . .	38 0	29 20	41 4	30 39	32 6	34 14
5	No manure	32 58	27 39	24 24	17 32	23 29	25 12
6	½wt. super., ½wt. nitrate of soda (spring)	40 18	34 50	35 38	27 34	32 56	34 15
7	2wts. super., ½wt. nitrate of soda spring)	40 50	34 36	36 33	31 35	32 5	35 8
8	½wt. super., ½wt. sulphate of ammonia (seeding) . .	41 25	31 18	32 33	28 53	33 39	33 34
9	2wts. super., ½wt. sulphate of ammonia (seeding) . .	38 11	36 13	34 28	29 33	30 48	33 51
10	½wt. super., ½wt. sulphate of potash (seeding) . . .	40 50	32 31	34 44	28 9	28 44	33 0
11	2wts. super., ½wt. sulphate of potash (seeding) . . .	44 1	30 54	34 41	29 0	29 20	33 35
12	2wts. super., ½wt. sulphate of potash (seeding), ½wt. nitrate of soda (spring)	40 34	34 28	36 31	29 7	30 8	34 10
13	½wt. superphosphate . . .	40 11	34 35	34 18	25 58	29 36	32 56
14	No manure	40 9	28 31	24 36	14 6	21 9	25 42
15	½wt. basic slag	41 55	34 14	28 49	22 26	28 30	31 11
16	2wts. basic slag	42 23	39 43	28 10	27 47	29 22	33 29
17	10 tons farmyard manure .	40 7	31 26	28 25	28 8	29 49	31 35
18	10 tons farmyard manure, 2wts. super.	41 44	32 41	32 40	32 17	28 43	33 37
19	10 tons farmyard manure, 2wts. super., ½wt. sul- phate of potash	42 5	31 56	32 0	32 12	33 34	34 21
20	2wts. super., 4wts. gypsum	41 8	31 36	33 12	29 13	28 43	32 46
21	2wts. super., 5wts. lime .	45 58	35 38	31 3	29 36	29 15	34 18
22	2wts. super. (half at ploughing)	40 40	32 18	30 16	28 52	28 59	32 13
23	2wts. super. (half at ploughing), ½wt. nit- rate of soda	41 31	32 20	31 55	28 3	31 20	33 2

These manurial tests with wheat have been conducted uninterruptedly for the past five seasons, and in such a series of seasons, and in these particular soil conditions, they appear to show very clearly for Booborowie Experimental Farm that—

1. A $\frac{1}{2}$ cwt. dressing of superphosphate gives an increase of 3bush. 54lbs. of wheat per acre, over and above the yield received from wheat grown without manure.

2. A dressing of 1cwt. superphosphate gives an increased yield of 6bush. 34lbs. per acre.

3. A 2cwt. application of superphosphate gives an increase of 7bush. 54lbs. per acre.

4. A 3cwt. dressing of superphosphate gives an increase of 8bush. 47lbs. per acre.

5. A dressing of 1cwt. superphosphate gives an increase of 2bush. 40lbs. over and above that received from a $\frac{1}{2}$ cwt. dressing superphosphate.

6. A dressing of 2cwts. superphosphate gives an increase of 4bush. over a $\frac{1}{2}$ cwt. dressing.

7. A dressing of 3cwts. superphosphate gives an increase of 3bush. 7lbs. over a $\frac{1}{2}$ cwt. dressing.

8. A dressing of 2cwts. superphosphate gives an increase of 1bush. 20lbs. over and above that received from a dressing of 1cwt. superphosphate.

9. A dressing of 3cwts. superphosphate gives an increase of 2bush. 13lbs. over a 1cwt. application.

10. A 3cwt. dressing of superphosphate gives an increase of 53lbs. over and above that received from a 2cwt. application of superphosphate.

11. An application of 1cwt. basic slag gives an increase of 5bush. 44lbs. over the no-manure plots.

12. An application of 2cwts. basic slag gives an increase of 8bush. 2lbs. over the no-manure plots.

13. A 2cwt. dressing of basic slag gives an increase of 2bush. 18lbs. over a 1cwt. dressing of basic slag.

14. The addition of $\frac{1}{2}$ cwt. nitrate of soda to a dressing of 1cwt. superphosphate gives an increase of 2bush. 14lbs. per acre.

15. The addition of $\frac{1}{2}$ cwt. nitrate of soda to a dressing of 2cwts. superphosphate gives an increase of 1bush. 47lbs. per acre.

16. An application of $\frac{1}{2}$ cwt. sulphate of ammonia added to 1 cwt. superphosphate gives an increase of 1 bush. 33 lbs. per acre.

17. An application of $\frac{1}{2}$ cwt. sulphate of ammonia added to a 2 cwt. dressing of superphosphate gives an increase of 30 lbs. of wheat per acre.

18. A $\frac{1}{2}$ cwt. dressing of sulphate of potash in addition to 1 cwt. superphosphate gives an increase in yield of 59 lbs. of wheat per acre.

19. A $\frac{1}{2}$ cwt. dressing of sulphate of potash in addition to 2 cwt. superphosphate gives an increase in yield of only 14 lbs. of wheat per acre.

20. The addition of $\frac{1}{2}$ cwt. sulphate of potash and $\frac{1}{2}$ cwt. nitrate of soda to 2 cwt. superphosphate gives an increase of only 49 lbs. of wheat per acre. The addition of $\frac{1}{2}$ cwt. sulphate of potash gives no extra return over the superphosphate and nitrate of soda. The addition of $\frac{1}{2}$ cwt. nitrate of soda gives an increase of only 35 lbs. over the superphosphate and sulphate of potash dressing.

21. Ten tons of farmyard manure per acre gives an increase of 6 bush. 8 lbs. of wheat, at a minimum cost of £4 for the fertiliser.

22. Ten tons of farmyard manure and 2 cwt. superphosphate per acre only gives a yield of 16 lbs. of wheat more than that received from a dressing of 2 cwt. superphosphate alone. The addition of $\frac{1}{2}$ cwt. sulphate of potash to 2 cwt. superphosphate and 10 tons farmyard manure only increases the yield by 44 lbs. of wheat per acre.

23. The addition of 4 cwt. gypsum to the dressing of 2 cwt. superphosphate gives no increase to the wheat crop.

24. The addition of 5 cwt. lime to a dressing of 2 cwt. superphosphate gives an increase of 57 lbs. of wheat per acre, at a minimum extra cost of 8s. for lime.

25. Putting half of the superphosphate into the land at ploughing time, and at the depth of ploughing, does not give an increase over the method of putting all of the superphosphate in with the seed when 2 cwt. superphosphate is used to the acre.

26. The addition of $\frac{1}{2}$ cwt. nitrate of soda to 2 cwt. superphosphate, when half of the latter fertiliser is put in the soil at ploughing time, only gives an increase of 49 lbs. of wheat per acre.

MONEY VALUE OF INCREASES.

Owing to the ever-varying prices of both grain and fertilisers, it is quite impossible to put a correct money value on the increases secured

from different fertilisers, but if we take figures about 25 per cent. in advance of pre-war prices we can get a comparison of the above results set in another light. In the table below, the prices used to arrive at the values of grain increases are:—

	<i>s. d.</i>
Wheat	3 9 per bushel
Superphosphate	5 0 per cwt.
Basic slag	5 0 per cwt.
Nitrate of soda	18 0 per cwt.
Sulphate of ammonia	16 0 per cwt.
Sulphate of potash	18 0 per cwt.
Farmyard manure	8 0 per ton
Gypsum	2 0 per cwt.
Lime	32 0 per ton

Addition of—	To—	Gives Increase of—	Increase at 3s. 9d. per Bush.	Cost of Extra Outlay.	Profit per Acre.
		<i>s. l.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
½ cwt. super.	No manure	3 54	14 7	2 6	10 1
1 cwt. super.	No manure	6 34	24 7	5 0	19 7
2 cwt. super.	No manure	7 54	29 7	10 0	19 7
3 cwt. super.	No manure	8 47	32 11	15 0	17 11
½ cwt. super.	½ cwt. super.	2 40	10 0	2 6	7 6
1½ cwt. super.	½ cwt. super.	4 0	15 0	7 6	7 6
2½ cwt. super.	½ cwt. super.	3 7	11 8	12 6	Loss
1 cwt. super.	1 cwt. super.	1 20	5 0	5 0	—
2 cwt. super.	1 cwt. super.	2 13	8 4	10 0	Loss
1 cwt. super.	2 cwt. super.	0 53	3 4	5 0	Loss
1 cwt. basic slag	No manure	5 44	21 6	5 0	16 6
2 cwt. basic slag	No manure	8 2	30 1	10 0	20 1
1 cwt. basic slag	1 cwt. basic slag	2 18	8 7	5 0	3 7
½ cwt. nitrate of soda	1 cwt. super.	2 14	8 4	9 0	Loss
½ cwt. nitrate of soda	2 cwt. super.	1 47	6 8	9 0	Loss
½ cwt. sulphate of ammonia	1 cwt. super.	1 33	5 10	8 0	Loss
½ cwt. sulphate of ammonia	2 cwt. super.	0 30	1 10	8 0	Loss
½ cwt. sulphate of potash	1 cwt. super.	0 59	3 8	9 0	Loss
½ cwt. sulphate of potash	2 cwt. super.	0 14	0 10	9 0	Loss
½ cwt. sulphate of potash and ½ cwt. nitrate of soda	2 cwt. super.	0 49	3 1	18 0	Loss
½ cwt. sulphate of potash	2 cwt. super. and ½ cwt. nitrate of soda	Decrease	—	9 0	Loss
½ cwt. nitrate of soda	2 cwt. super. and ½ cwt. sulphate of potash	0 35	2 2	9 0	Loss
10 tons farmyard manure	No manure	6 8	23 0	80 0	Loss
10 tons farmyard manure	2 cwt. super.	0 16	1 0	80 0	Loss
½ cwt. sulphate of potash	10 tons farmyard manure and 2 cwt. super.	0 44	2 9	9 0	Loss
4 cwt. gypsum	2 cwt. super.	Decrease	—	8 0	Loss
5 cwt. lime	2 cwt. super.	0 57	3 7	8 0	Loss

Permanent Cultivation Plots, Booborowie, 1916-1920.

All plots dressed with 2cwts. superphosphate per acre.

Treatment.	Yield per Acre.										Means, 1916-20.
	1916. B. L.	1916. L.	1917. B. L.	1917. L.	1918. B. L.	1918. L.	1919. B. L.	1919. L.	1920. B. L.	1920. L.	
Ploughed 6in. deep and harrowed within a few days. Cultivated or harrowed whenever weeds or a crust render necessary ..	40	48	31	33	31	44	28	30	30	29	32 37
Ploughed 6in. deep, and left rough throughout the winter. Cultivated or harrowed whenever weeds or a crust render necessary ..	41	4	35	52	33	56	28	45	29	19	33 47
Ploughed 6in. deep, and rolled within a few days, and cultivated or harrowed according to circumstances. Cultivated or harrowed whenever weeds or a crust render it necessary	33	25	33	14	29	34	27	31	28	26	30 26
Ploughed 6in. deep, and skimpoughed after first rain. Cultivated or harrowed whenever weeds or a crust render necessary ..	41	1	33	47	32	24	25	53	27	57	32 12
<i>Late Fallow (September).</i>											
Ploughed 3in. deep and cultivated according to requirements, but not rolled ..	35	38	32	29	31	28	26	35	29	6	31 3
Ploughed 6in. deep and heavily rolled the same day as ploughed. Cultivated according to requirements ..	37	45	30	56	31	25	26	39	28	46	31 6
<i>Autumn Ploughing (March or April).</i>											
Not bare-fallowed, but ploughed 4in. deep, and immediately rolled. Cultivated according to requirements ..	35	49	24	3	28	12	17	58	26	30	26 30

Permanent Depth of Ploughing Plots, Booborowie, 1916-1920.

All plots dressed with 2cwts. superphosphate per acre.

Depth of Ploughing.	Yield per Acre.										Means, 1916-20.
	1916. B. L.	1916. L.	1917. B. L.	1917. L.	1918. B. L.	1918. L.	1919. B. L.	1919. L.	1920. B. L.	1920. L.	
Ploughed 3in. deep ..	40	2	28	20	33	38	27	25	28	23	31 40
Ploughed 6in. deep ..	37	26	31	24	32	42	27	1	28	50	31 29
Ploughed 9in. deep ..	33	54	33	17	32	23	27	20	29	19	31 15
Ploughed 9in. deep (to be then twice ploughed 3in. before again being ploughed 9in.) ..	33	44*	—	—	30	35†	—	—	29	34†	30 40

* 9in. ploughing.

† 3in. ploughing.

The tests, comparing different methods of cultivating land for wheat growing, show, where the same variety of wheat and the same manuring are used at Booborowie, that, for a series of seasons such as the past five:—

1. Bare fallowing the land in any way gives an increase to the wheat crop grown of from 4bush. to 7bush. per acre.

2. The biggest returns are obtained from fallowed land prepared according to the recognised practice of the district, *i.e.*, ploughing early, leaving rough throughout the winter, then cultivating or harrowing whenever weeds or a surface crust render it necessary.

3. Harrowing the land immediately after ploughing appears to have a depressing effect, to the extent of about 1bush. per acre in the yield.

4. The rolling immediately after ploughing of "early" fallow appears to have a depressing effect on the yield to the extent of over 3bush. per acre.

5. Skim ploughing the fallowed land after the first rain does not increase the wheat crop above what is received by ordinary fallow-working.

6. Land ploughed in July in preparing the bare fallow gives an increase of a little more than 1bush. of grain per acre over the yield received from land ploughed in September.

7. September ploughing gives about equal yields whether ploughed shallow (3in.) and not rolled, or ploughed deep (6in.) and heavily rolled the same day.

8. The depth to which land is ploughed between 3in. and 9in. has but little effect on the yields of wheat crops.

ROTATION OF CROPS.—EXPERIMENTAL PLOTS.

Several series of permanent experimental plots were mapped out in 1915, and all of these have been continued since that time. The field chosen for the rotation plots was fortunately bare fallowed in 1914, and so crops and records for these crops start from that year. As the series of rotations covering a comparatively long period of time have not yet done a complete cycle, it is hardly possible to interpret the results secured, and this will be so for a few more years.

Rotation Plots, Booborowie, 1915-1920.

	1915.		1916.		1917.		1918.		1919.		1920. 1915-20.	
	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.
SERIES I.—Plots 1 and 2.												
<i>Bare Fallow—Wheat (2cwt. super.).</i>												
Wheat .	29	42	30	28	32	22	23	10	23	5	28	9
SERIES II.—Plots 3 and 4.												
<i>Sorghum—Wheat (2cwt. super.).</i>												
Wheat .	34	44	31	20	31	50	19	49	24	37	31	50

Rotation Plots, Booborowie, 1915-1920—continued.

	1915.	1916.	1917.	1918.	1919.	1920.	1915-20.
	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.
SERIES IIIA.—Plots 5 to 7.							
<i>Pasture—Bare Fallow—Wheat (no manure).</i>							
Wheat .	29 5	28 45	25 40	15 40	20 6	22 17	23 35
SERIES IIIB.—Plots 8 to 10.							
<i>Pasture—Bare Fallow—Wheat (1cwt. super.).</i>							
Wheat .	37 9	37 47	35 10	26 5	29 53	35 54	33 40
SERIES IIIC.—Plots 11 to 13.							
<i>Pasture—Bare Fallow—Wheat (1cwt. super.).</i>							
Wheat .	38 51	39 17	36 6	27 56	28 28	35 51	34 25
SERIES IIID.—Plots 14 to 16.							
<i>Pasture—Bare Fallow—Wheat (2cwt. super.).</i>							
Wheat .	37 6	39 30	36 48	23 55	28 41	33 1	33 10
SERIES IIIE.—Plots 17 to 19.							
<i>Pasture—Bare Fallow—Wheat (3cwt. super.).</i>							
Wheat .	39 40	40 0	32 58	25 43	27 26	32 17	33 1
SERIES IVA.—Plots 20 to 22.							
<i>Bare Fallow—Wheat (2cwt. super.)—Barley (1cwt. super.).</i>							
Wheat .	37 37	43 40	38 33	27 6	25 13	33 23	34 15
Barley .	27 47	26 27	18 5	27 17	1 18	20 13	20 13
SERIES IVB.—Plots 23 to 25.							
<i>Bare Fallow—Wheat (2cwt. super.)—Oats (1cwt. super.).</i>							
Wheat .	34 0	42 25	41 52	28 18	26 26	38 6	35 11
Oats .	31 9	33 23	45 32	43 18	14 30	42 32	35 11
SERIES IVC.—Plots 26 to 28.							
<i>Bare Fallow—Wheat (2cwt. super.)—Peas (1cwt. super.).</i>							
Wheat .	36 23	42 41	39 37	24 2	28 39	37 24	34 48
SERIES IVB.—Plots 29 to 31.							
<i>Bare Fallow—Wheat (2cwt. super.)—Rape (1cwt. super.).</i>							
Wheat .	31 35	44 54	45 27	23 11	24 16	35 20	34 7
SERIES V.—Plots 32 and 33.							
<i>Bare Fallow—Wheat (2cwt. super.).</i>							
Wheat .	34 52	44 47	28 44	29 31	22 18	33 40	33 59
SERIES VIA.—Plots 34 to 37.							
<i>Pasture—Bare Fallow—Wheat (2cwt. super.)—Barley (2cwt. super.).</i>							
Wheat .	35 1	49 5	37 56	27 19	27 24	33 12	34 59
Barley .	41 7	34 16	27 43	37 28	14 5	24 1	29 42
SERIES VIIB.—Plots 38 to 41.							
<i>Pasture—Bare Fallow—Wheat (2cwt. super.)—Oats (2cwt. super.).</i>							
Wheat .	35 49	48 42	39 25	28 54	28 11	36 57	36 20
Oats .	40 20	23 5	43 24	41 3	12 13	38 27	33 9
SERIES VII.—Plots 42 to 46.							
<i>Bare Fallow—Wheat and Lucerne (2cwt. super.)—Lucerne—Lucerne—Lucerne.</i>							
Wheat .	33 37	33 47	41 37	33 30	28 1	36 40	34 32
SERIES VIII.—Plots 47 to 50.							
<i>Bare Fallow—Wheat and Rye Grass (2cwt. super.)—Rye Grass—Rye Grass.</i>							
Wheat .	22 0	47 30	32 45	25 26	23 45	32 19	30 37

Grazing Crops in Rotation Plots.

	Sheep per Acre per Year.				Means. 1917-20.
	1917.	1918.	1919.	1920.	
SERIES II.—					
Sorghum	2.90	2.13	5.43	4.59	3.76
SERIES IIIA.—					
Pasture after wheat without manure	0.89	0.57	2.61	4.21	2.07
SERIES IIIB.—					
Pasture after wheat with ½wt. superphosphate. . .	1.28	0.99	2.61	3.60	2.12
SERIES IIIC.—					
Pasture after wheat with 1wt. superphosphate . .	0.85	1.29	2.09	3.60	1.96
SERIES IIID.—					
Pasture after wheat with 2wts. superphosphate . .	1.55	0.99	2.46	3.79	2.20
SERIES IIIE.—					
Pasture after wheat with 3wts. superphosphate. . .	1.24	0.71	2.32	4.49	2.10
SERIES IVC.—					
Peas with 1wt superphos- phate	2.15	1.59	2.14	5.39	2.82
SERIES IVD.—					
Rape with 1wt. superphos- phate	1.59	1.41	2.16	6.48	2.91
SERIES VIA.—					
Pasture after barley with 2wts. superphosphate. . .	1.23	1.27	1.78	2.53	1.70
SERIES VIB.—					
Pasture after oats with 2wts. superphosphate. . .	1.46	1.47	1.81	3.95	2.17
SERIES VII.—					
Lucerne sown with wheat and 2wts. superphosphate					
1916 crop (plot 42) . . .	1.49	2.06	1.52	—	2.48
1917 crop (plot 46) . . .	—	1.05	1.28	5.80	
1918 crop (plot 45) . . .	—	—	1.38	4.63	
1919 crop (plot 44) . . .	—	—	—	3.09	
SERIES VIII.—					
Rye grass sown with wheat and 2wts. superphosphate					
1915 crop (plot 48) . . .	0.97	—	—	4.85	2.78
1916 crop (plot 47) . . .	2.20	1.30	—	—	
1917 crop (plot 50) . . .	—	2.53	2.35	—	
1918 crop (plot 49) . . .	—	—	1.77	6.29	
SERIES IX.—					
Continuous grazing	—	—	0.78	3.94	—

Seed in Rotation Plots, 1920.

Wheat—Federation	75lbs. per acre.
Barley—Roseworthy Oregon	60lbs. per acre.
Oats—Scotch Grey	80lbs. per acre.
Peas—Early Dun	100lbs. per acre.
Rape—Dwarf Essex	5lbs. per acre.
Lucerne—Hunter River	6lbs. per acre.
Rye Grass—Italian	9½lbs. per acre.
Sorghum—Early Amber Cane	6lbs. per acre.



Silver Cups, presented by H. S. Taylor, Esq. (Editor "River Murray Pioneer"), to be competed for at the Fruit Tree and Vine Pruning Championship Competition, to be held at Berri on Tuesday, June 14th.

IMPORTS AND EXPORTS OF FRESH FRUIT, ETC.

During the month of May, 1921, 2bush. of apples, 8,296bush. of bananas, 116bush. of passion fruit, 261bush. of pineapples, 16,128 bags of potatoes, 754 bags of onions, 6 packages of bulbs, 37 packages of seeds, 36 packages of plants, and 2,820 empty wine casks were examined and admitted at Adelaide and Port Adelaide under the Vine, Fruit, and Vegetable Protection Acts, 1885 and 1910. Of these, 15bush. of bananas (over-ripe) were destroyed, 145 bags of potatoes returned to State of origin, 9 packages of plants and 55 empty wine casks were fumigated.

Under the Federal Commerce Act, 728 packages of fresh fruit, 12,093 packages of dried fruit, 1 package of jam, and 5 packages of plants were exported to oversea markets. These were consigned as follows:—To London, 12,008 packages of dried fruit, 1 package of jam, 25 packages of apples; to New Zealand, 703 packages of citrus fruit, 5 packages of plants; to Durban, 60 packages of dried fruit; to Samarang, 25 packages of dried fruit.

Under the Federal Quarantine Act, 4,223 packages of seeds, &c., were examined and admitted from oversea sources.

MURRAY BRIDGE HERD TESTING SOCIETY.

RESULTS OF BUTTERFAT TESTS FOR FEBRUARY, 1921.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during February.	Per Cow during February.	Per Cow October to February.	Per Herd during February.	Per Cow during February.	Per Cow October to February.
I/A	12	8-22	Lbs. 4,466	Lbs. 372-17	Lbs. 2,725-46	Lbs. 198-95	Lbs. 16-58	Lbs. 122-28
I/B	14	14	8,988	642	3,446-51	378-88	27-06	142-84
I/C	45	38-82	21,778	483-96	2,803-15	918-00	20-40	111-48
I/D	21	15-29	8,916	424-57	2,088-39	431-27	20-54	100-71
I/E	14	12-82	7,736	552-57	2,523-99	387-20	27-66	120-94
I/F	11	10-29	5,190	471-82	2,891-91	220-40	20-04	115-22
I/G	45-61	37	32,840	720-06	3,993-02	1,271-48	27-88	146-86
I/H	14	12-54	6,712	479-43	2,400-38	287-09	20-51	100-17
I/I	15	11-11	6,074-5	404-97	3,523-23	267-41	17-83	137-30
I/J	15	14	9,114	607-60	3,485-40	408-94	27-26	148-69
I/K	14	11-64	7,766	554-71	2,487-99	340-54	24-32	106-31
I/L	13	9-71	4,301	330-85	2,932-87	199-38	15-34	129-26
I/M	21	17-79	7,318	348-48	2,071-76	314-73	14-99	93-35
I/N	20	20	9,072	453-60	2,301-68*	440-24	22-01	100-07†
I/O	26-43	22-43	11,046	417-96	1,578-73†	536-97	20-32	72-59†
I/P	21	17-75	9,172-5	436-79	1,464-24†	398-29	18-97	58-88†
I/Q	—	—	—	—	—	—	—	—†
MEANS (per cow per month).....			498-35	569-65	—	21-74	24-09	—

* For four months only.

† For three months only.

‡ Withdrawn from society.

FARMERS' CO-OPERATIVE EXECUTORS AND TRUSTEES, LIMITED.

DIRECTORS:

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RESULTS OBTAINED BY THE PLANTING AND EXPLOITATION OF THE REMARKABLE PINE IN SOUTH AUSTRALIA.

[By W. GILL, F.L.S., F.R.H.S., Conservator of Forests, South Australia.]

The introduction of the Remarkable or Monterey pine (*Pinus insignis*) into South Australia was due to the efforts of the late well-known botanist, Baron Sir F. von Mueller, K.C.M.G., F.L.S., &c.; but the earliest plantations of this pine, which were established before 1890, were started by the late Mr. John Ednie Brown when Conservator of Forests in South Australia from September, 1878, to June, 1890. Professor W. L. Jepson, in his "Sylva of California," page 100, states that this pine is a strictly littoral species of very limited range, distributed along the coast of San Francisco Bay a distance of 130 miles. Its occurrence within this range, however, is by no means continuous, the localities being few and widely separated. It occurs at Pescadero Monterey and San Simeon Bay. At Monterey it forms considerable woods on the picturesque stretch of coast hills between Monterey town and Point Lobos, extending inland six or seven miles, and southward as a narrow strip on the mesas of the ocean bluffs as far as Malpaso Creek. It was, therefore, only natural that the name "Monterey" should be given to it, but the name "Remarkable" has a wider scope, indicating the truly remarkable qualities that this pine possesses as probably the most rapid producer of useful timber of any hitherto brought under cultivation, as it gives more timber to the acre in a shorter time than any other recorded, provided suitable conditions are obtainable. As an ornamental tree also it stands high, its deep green foliage and massive growth giving it a very imposing appearance. He describes this tree under the name of Monterey pine, the name given to it by Don; but it appears that Don described it under two different names simultaneously, and therefore Baron Sir F. von Mueller considered that the name "insignis" given by Douglas should be retained in spite of the fact that it was given a little later than Don's.

Sir David Hutchins supports von Mueller in leaving the old well-known name for the insignis undisturbed, and the author of the "Pinetum Britannicum" takes the same view. In South Australia, at any rate, the specific name insignis is the most widely known, and will probably continue to maintain its popularity. The exact botanical description by Jepson is as follows:—"Beautiful symmetrical tree, with flattened or broken top, 30ft. to 70ft. or 115ft. high; foliage a rich dark green; trunk 1ft. to 4ft. in diameter, vested in fissured bark, which is hard, and more nearly black than that of any other Californian pine; needles in threes, or a few in twos, 3in. to 6in. long, remaining on the tree two to five years; staminate catkins yellow, 20 to 40 in a cluster, conic-cylindric, six or seven lines long, the stipes not exerted

from the winter bud; ovulate catkins peduncled two to five in a circle, one to three circles formed on the shoot of a season; cones tan or cinnamon color, turned downward, sessile and unequally developed, broadly ovoid and bluntly pointed or globose when open, $2\frac{1}{2}$ in. to $4\frac{1}{2}$ in. long; scale tips on the outer side toward the base conspicuously or swollen into a hemispherical or pyramidical tubercle or boss, and all armed with a prickle, which usually weathers off; seeds black, minutely roughened on the surface three lines long, bearing a broadly oblong brown wing two to three times as long; cotyledons five to seven."

Mr. Herbert Stone, F.L.S., F.R.S., author of "Timbers of Commerce," and Lecturer in Forestry, Cambridge University, England, referring to the timber of this pine, states that it is held to be much superior to the American white pine (*Pinus strobus*), so well known from the forests of the United States and Canada; and that it has the advantage over the white pine of nearly $11\frac{1}{2}$ per cent. in point of elasticity; it will carry nearly 12 per cent. more load before breaking; it has about $12\frac{1}{2}$ per cent. more capacity of resistance to crushing, and is nearly $14\frac{1}{2}$ per cent. harder.

He supports his statements on Hough's figures, which are given below:—

	<i>Pinus insignis.</i>	<i>Pinus strobus.</i>
Co-efficient of elasticity	97,850	85,093
Modulus of rupture	740	626
Resistance to longitudinal pressure	417	339
Resistance to indentation pressure	105	74
Weight of cubic foot in lbs. average	28.51	24.02

The practical utility of this timber has been amply demonstrated, as it has been used for the manufacture of tables, chests of drawers, cabinets, wheelbarrows, ladders, sides and bottoms of drays, shelving, doors, weatherboarding, matchboard and flooring for houses, gates and pickets for fencing, for all of which purposes it has answered admirably, while for case timber it has proved of exceptional value owing to its tough character and its capacity for holding nails; green timber when cut soon dries sufficiently for this purpose, and maintains its shape well without warping. When used for furniture the wood works up exceedingly well, and takes a fine polish. This timber has also been found to make high-class brushware, i.e., bass stocks, hair stocks, and bannister stocks, for which purpose it is now preferred to any imported wood. One chest of drawers made 25 years ago from a tree 14 years old, and another made from a tree 29 years old 10 years ago, are still in first-rate order.

To give the best results, this pine requires a fairly good soil, well drained, in a district with a winter rainfall where it is from 20 in. to 30 in. per annum, and a sandy loam of fair depth overlying a good permeable clay would be an ideal site for it, but it does not thrive on limestone country. In the warmer northern districts of South Australia it needs a good elevation to succeed, as it does not stand the droughts which occur now and then when grown on the plains. In the south-eastern parts of the State, south of latitude 36, however, it

does well on the lower levels, and has been largely grown in the Mount Gambier district. In many localities trees can be grown large enough within a year for planting out the same season, and moderate-size trees are usually the best; but in the South-East larger trees can also be transplanted with excellent results owing to the more temperate character of the climate.

The following statement gives several interesting details based on the actual measurements taken, of all timber down to a diameter of 3in., obtained by clear cutting over given areas of plantations, all measurements being carefully checked by two measurers on each side for the vendor and the purchaser respectively.

Name of Plantation.	Age of Trees. Years.	Area cut over Acres.	Average Annual Increment, super ft.	Total Actual Volume, per Acre, super ft.	Actual Gross Volume, super ft.	Actual Measured Volume, per Hoppus, super ft.	Value Received for Actual Measured Volume, at 10/8 per 100 sup. ft.
H .	36	19.20	2,434	87,655	1,682,980	1,304,310	£6,638 16 0
I .	35	41.05	1,887	66,069	2,708,844	2,099,354	£10,598 15 10
J .	35	7.06	1,819	63,688	445,817	345,508	£1,770 14 9
L .	33	6.23	2,306	76,127	475,796	368,742	£1,922 18 11
—	73.54	—	—	—	5,313,437	4,117,914	£20,931 5 6

It should be noted that the value received was at the rate of 10s. 3d. per hundred super feet per hoppus quarter-girth measurement, "at the stump" in the plantation, felled by the buyer, and the only cost to the department for the sale was that of measuring and recording the logs. Previous to this sale, some timber had been removed for the department's mill at various times, the value of which is not included here, all figures now given being connected with the sale only; but it may be stated that the quantity removed from plantations "H" and "I" would add 10 per cent., and from "J" 20 per cent. to the average annual increment for each plantation respectively, and increase the return accordingly. An interesting feature connected with this sale is that the trees removed from plantation "L" were all planted 33 years ago under the direction of the writer of this paper, a result which is seldom attained in the experience of a forester. Further details given below show how the costs are arrived at, and indicate the actual nett return.

Name of Plantation.	Age of Trees. Years.	Capital Cost Per Acre.	Compound Interest at 4½ Per Cent.	Exploitation Costs Per Acre.	Total Costs Per Acre.	Gross Return Per Acre.	Nett Return after Deducting Total Cost Per Acre.
"H"	36	£10	£39	£22	£71	£365	£294
"I"	35	£10	£37	£16	£63	£258	£193
"J"	35	£10	£37	£16	£63	£251	£188
"L"	33	£10	£33	£19	£62	£319	£257

In calculating the expense of growing these trees, £5 per acre is a reliable figure for the cost of the land, and to this must be added another £5 for original costs of fencing, clearing land for planting,

rearing and planting and maintaining the trees, making a total of £10 per acre, for which compound interest has been allowed at $4\frac{1}{2}$ per cent. for the number of years the trees have been growing before they were felled. As forest lands are not taxed in South Australia, the only remaining charges are those for exploitation, and when the costs shown in the first three columns are totalled and deducted from the gross return, the net values shown are for plantation "H" £294, plantation "I" £193, plantation "J" £188, and plantation "L" £257 per acre respectively.

These details need little or no comment, as they speak for themselves; but it may be further stated, in conclusion, that on other occasions actual results obtained by the department in its own sawmills have shown a total of 100,000 sup. ft. of this pine to the acre as the return in some places, so that the quantities tabulated are less than may often be expected. Bearing this in mind, it may be safely stated that, speaking broadly, the net return per acre of from £200 to £300 may be anticipated according to the suitability or otherwise of any given locality for producing this tree, which fully justifies its name of Remarkable pine.

PRELIMINARY REPORT ON SOUTH AUSTRALIAN CEREAL AND HAY CROPS, 1920-21.

Wheat, 34,236,914bush.; average, 15-82. Barley, 4,187,814bush.; average, 20-39. Oats, 2,511,465bush.; average, 13-89. Hay (wheaten), 477,845 tons; (oaten), 275,879 tons; total, 753,724 tons.

For the purpose of ascertaining the final results of the recent harvest of cereals and hay, the necessary forms were distributed and collected through the post by the aid of the police officers, and from these the estimate now issued has been compiled.

Forms were sent to 15,473 farmers, and up to date of compilation 14,878 had been returned. Allowances equal to the averages of the respective districts having been made for the few outstanding returns, the results now published, though termed preliminary, may be regarded as final.

Of the 15,473 farms, wheat for grain or hay was grown by 13,783 (13,360), barley by 4,731 (3,976), oats by 8,749 (7,569).

RAINFALL—ADELAIDE OBSERVATORY.

Year.	January-March.	April-November.	December.	Total.	Wheat Average per Acre.
	In.	In.	In.	In.	Bush.
1916	1-5	25-0	1-7	28-2	16-46
1920	1-7	22-9	2-1	26-7	15-82

The seasonal rainfall was very similar in periods of fall and quantity to that of 1916-17, when the State's record wheat crop of 45,745,064bush., average 16.46bush. per acre, was realised.

The harvesting period, however, was unfavorable; heavy storms and late rains reduced the yield considerably, and destroyed quantities of hay. Notwithstanding these disabilities, the harvest ranks second to the record crop for wheat, was a record for barley by 1,738,878bush., and oats by 377,091bush., the hay cut being second to the record of 1915-16.

ACREAGE.

Wheat.—The total acreage sown with wheat was 2,501,448 (2,449,837) acres, increase 51,611. The area was distributed as follows:—Grain, 2,163,646 (1,926,515) acres; hay, 329,543 (450,371) acres; fed off, 8,259 (72,551) acres. The grain and hay areas include 15,561 acres of cropped land which entirely failed against 233,391 acres the previous season.

Barley.—The total area sown was 212,158 (165,113) acres, increase 47,045. Of this area 205,400 acres are reported to have been reaped, the balance being for green fodder.

Oats.—The total area sown was 423,379 (341,439) acres, increase 81,940 acres. Of this area 180,833 (192,153) acres were reaped, and 242,546 (149,286) acres were cut for hay or fed off.

Grand Total Acreage.—The combined areas sown with wheat, barley, and oats for all purposes total 3,136,985 (2,956,389) acres, an increase of 180,596 acres.

The following is a comparative summary of the sown areas:—

Season.	Area for Grain.			Hay, Fodder, Etc.	Total.
	Wheat.	Barley.	Oats.		
	Acres.	Acres.	Acres.	Acres.	Acres.
1919-20	1,926,915	157,897	192,153	679,424	2,956,389
1920-21	2,163,646	205,400	180,833	587,106	3,136,985
Increase	236,731	47,503	—11,320	—92,318	180,596

PRODUCTION.

Wheat.—34,236,914 (14,980,413) bushels, an increase of 19,256,501bush. Average per acre, 15.82 (7.77) bushels. Of the total crop 31,120,000bush. have been sold to the Wheat Pool, the balance of 3,116,914bush. represents chiefly wheat retained for seed and farm consumption.

Barley.—The yield of barley was considerably above any previous record, the total being 4,187,814 (2,448,936) bushels, average, 20.39 (15.51) bushels per acre. Of this quantity 3,623,878bush. were reported as malting, and 563,936bush. as feed.

The principal producing counties were Adelaide, 236,661bush.; Ferguson; 1,799,450bush.; Gawler, 396,698bush.; Light, 170,702bush.; Daly, 363,099 bushels; Stanley, 126,613bush.; Grey, 482,809bush.; Carnarvon (Kangaroo Island), 115,080bush.; Flinders, 75,987bush.

Oats.—2,511,465 (1,634,239) bushels; average, 13.89 (8.50) bushels per acre.

Hay.—Total yield, 753,724 (590,886) tons; wheaten hay, 477,845 tons; average, 1.45 tons per acre.

SOUTH AUSTRALIA.—PRELIMINARY STATISTICAL SUMMARY OF THE CEREAL AND HAY HARVEST, SEASON, 1920-21.
ACRES CROPPED.

Division.	Wheat.			Barley.		Oats.		Green Fodder.	
	Total Wheat, Barley, and Oats.	Wheat.		Grain.	Hay.	Grain.	Hay.	Grain.	Hay.
		Acres.	Acres.						
Central	1,133,537	702,116	163,314	133,020	47,193	133,020	47,193	133,020	47,193
Lower North	849,784	662,169	91,259	90,420	25,360	90,420	25,360	90,420	25,360
Upper North	207,091	58,928	38,928	26,323	70,564	26,323	70,564	26,323	70,564
South-Eastern	277,681	143,032	44,032	14,743	83,628	14,743	83,628	14,743	83,628
Western	319,427	400,233	26,793	205,400	180,883	205,400	180,883	205,400	180,883
Total, 1920-21	3,130,985	2,163,646	320,543	157,897	192,153	157,897	192,153	157,897	192,153
" 1919-20	2,959,389	1,925,915	450,371	130,857	180,823	130,857	180,823	130,857	180,823
" 1918-19	3,014,480	2,186,349	358,063	95,654	106,555	95,654	106,555	95,654	106,555
" 1917-18	2,982,594	2,355,682	292,803	103,627	151,009	103,627	151,009	103,627	151,009
" 1916-17	3,820,374	2,778,357	323,633						

PRODUCTION.

Division.	Wheat.		Barley.		Oats.		Hay.	
	Total Yield.	Average per Acre.	Total Yield.	Average per Acre.	Total Yield.	Average per Acre.	Wheaten.	Oaten.
Central	1,133,537	16.7	2,163,646	21.31	743,792	15.80	240,263	107,255
Lower North	849,784	15.07	1,633,314	18.21	392,584	17.56	140,493	56,514
Upper North	207,091	16.46	23,031	25.01	38,491	17.05	58,933	2,946
South-Eastern	277,681	12.23	614,735	23.33	962,058	12.23	9,657	34,709
Western	319,427	11.89	160,924	10.92	472,540	12.23	30,479	84,333
Total, 1920-21	34,236,914	15.82	4,197,814	20.39	2,511,455	13.89	477,845	275,879
" 1919-20	14,990,418	7.77	2,443,936	15.51	1,634,239	8.50	462,055	127,223
" 1918-19	22,936,925	10.49	2,417,349	18.54	1,540,603	9.53	436,147	135,016
" 1917-18	28,692,594	12.18	1,651,036	17.26	1,248,929	11.72	364,400	114,067
" 1916-17	45,745,094	16.46	1,734,420	16.74	1,330,441	12.13	434,413	163,243

DAIRY AND FARM PRODUCE MARKETS.

A. W. Sandford & Co., Limited, reported on June 1st, 1921:—

BUTTER.—The rains recorded during May were gladly welcomed by those interested in the dairying districts, especially as they were so general, and as mild weather has since ruled, herbage has come along nicely. At the present time supplies of butter are not quite equal to trade requirements, so that importations are coming along to fill up the shortage, but in lessening quantities. Prospects look very favorable for a coming good season. At the close of the month of May first-grade factory and creamery in prints sold from 1s. 10½d. to 1s. 11d.; second-grade factory and creamery, 1s. 5d. to 1s. 6d.; best separators and dairies, 1s. 7½d. to 1s. 9½d.; fair quality, 1s. 5d. to 1s. 6d.; store and collectors', 1s. 2d. to 1s. 4d.

EGGS show slight fluctuations during the month, present rates being:—Fresh hen, 2s. 2d.; duck, 2s. 3d.

CHEESE.—South-Eastern factories have been short in supplies, and importations from Queensland have come along to fill up the shortage, the range being from 1s. 3½d. to 1s. 4d. for new make.

HONEY.—Values have eased somewhat, owing to much heavier quantities offering. Prime clear extracted selling at 5d.; second grades, 3d. to 3½d. Beeswax, 1s. 8d. to 1s. 9d.

ALMONDS.—Although the crop this year is a light one, the demand has not been too active, and prices have been fairly stationary throughout the month, Brandis selling at 9½d. to 10d.; mixed softshells, 8½d. to 9d.; hardshells, 3½d. to 4d.; kernels, 1s. 7d.

BACON.—Owing to the lowering in price of the live animal, values have come back considerably. This also applies to the rates in the eastern States. Best factory-cured sides are selling at 1s. 2½d. to 1s. 3d.; middles, 1s. 4d.; hams slow of sale at 1s. 3d.

LIVE POULTRY.—It is pleasing to report that supplies throughout the month kept up remarkably well, and prices were very satisfactory to consignors, especially for quality lots. Can lend crates. Prime roosters, 4s. 3d. to 6s.; nice conditioned cockerels, 3s. to 4s.; plump hens, 3s. 6d. to 5s.; light birds, 2s. 6d. to 3s. 3d.; ducks, 2s. 10d. to 5s. 3d.; geese, worth 7s. to 7s. 6d.; turkeys, prime conditioned, 1s. to 1s. 3d. per lb. live weight; fair conditioned, 9d. to 11½d. per lb.; fattening sorts, lower; pigeons, 6d.

POTATOES.—Demand has kept up remarkably well during the month, the cool weather lately being responsible for the increase in consumption. Supplies are still arriving in the markets from the Hills districts, but the bulk of requirements are coming forward from Victoria. Best Victorians, £8 10s. to £9 on trucks, Mile End; locals, £8 10s. to £9; Gambiers, £5 2s. 6d. to £5 15s., on trucks South-Eastern station.

ONIONS.—These are ruling lower than they have for several years past—7s. 6d. to 8s. 6d. cwt. on trucks, Mile End; £3 to £3 10s. on trucks, Mount Gambier.

THE AGRICULTURAL OUTLOOK.

REPORTS FOR THE MONTH OF MAY.

The following reports on the general agricultural condition and outlook of the areas represented by the Government Experimental Farms mentioned below have been prepared by the respective managers:—

Kybybo'tte.—Weather—The first three weeks of the month kept very dry, and comparatively warm. Good rains have fallen during the last week, recording 1½ in. Several light frosts and fogs were noted during the month. Crops—The early sown crops have made good growth, a few beginning to wither a little before the rain. Seeding operations are well advanced, a good deal being sown dry. Since the rain all ploughs are hard at work, in the endeavor of securing as much under crop as possible. Natural feed is very scarce, but should come quickly now that good rain has fallen. Stock are in very fair condition, and the autumn lambing promises to be very good.

Eyre Peninsula.—Weather—Warm and unseasonable for first half of month, after which the weather broke, and rain has been frequent during latter half. Somewhere about 2 in., distributed over six or seven days. Crops—A number up, and looking very healthy, some covering the ground. About 80 acres sown to date. Natural feed still in abundance, and growing very quickly. Stock all in A1 condition, and free from disease. Pests—Mice very numerous, and rabbits commencing to put in an appearance. Miscellaneous.—Some olives are being planted out.

Turretfield.—Weather—The beginning of this month was exceptionally dry, no rain falling for the first three weeks, but on May 22nd a break was made in the droughty conditions, and 109 points of rain was registered on May 23rd. This was followed by other good rains, and the total registered for the month was 296 points, all of which fell in steady showers. Crops—A fair area of land has been sown dry, and the wheat is showing up in little patches. Several farmers have sown barley for grazing on stubble land, and this should do well. Natural feed—There is no natural feed, but the rains will bring it on now. Stock is not in the best of condition. Some farmers have a nice lot of lambs, and prospects are now bright for fat lambs. Pests—Mice are thick, and rats are increasing in numbers. Miscellaneous—Farms are still changing hands; many old settlers are leaving, and fresh ones are taking their places.

FLORENCE WHEAT.

Florence wheat is certainly very bunt-resistant, and, if carefully handled, and kept away from likely sources of infection, will remain free from disease for years. Mr. F. Coleman, of Saddleworth, has grown this wheat continuously for 10 years without on any occasion pickling the seed, and it is still bunt-free. Although so resistant, it is not safe to bring the seed in contact with live bunt-spores, otherwise infection may take place, and the resulting crop be diseased.—W. J. SPAFFORD (Superintendent Experimental Work).

POTASH!!!

MURIATE, 50%
SULPHATE, 90%



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**WOOLPACKS,
BINDER TWINE,
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WE CAN ALSO QUOTE
WIRE NETTING AND FENCING MATERIAL
OF EVERY DESCRIPTION.

DALGETY & COMPANY, LIMITED,
ADELAIDE AND BRANCHES.

ORCHARD NOTES FOR JUNE FOR THE SOUTHERN DISTRICT.

[By C. H. BEAUMONT, Orchard Instructor.]

Pruning and ploughing will be continued.

Do not allow water to accumulate about the trees; drain it away at the earliest possible moment. Especially is this necessary with citrus trees.

PLANTING.

This month is the ideal time for planting out young trees. If you have followed these notes you will have had the necessary holes ready for some time, and will also have had your order in with the nurseryman for your trees. I prefer the strong single-stemmed type of young stock of deciduous varieties. Sort out the trees as soon as they arrive, see that they are free from diseases and weeds; place them in a corner of the hole they are to occupy, covering the roots with a spadeful of soil, until ready to complete the work. Do not plant any damaged trees which are likely to be a constant source of trouble in after years. Cut off broken roots with a clean cut. Heap up the soil in the centre of the hole around a stiff stake; arrange the roots of the young tree in their proper positions, taking care to have a good root on the side from which the heaviest wind is expected; fill in part of the soil, and lightly tread it down; comb out the fibrous roots in place, and then fill in all the remaining soil, again lightly treading down about the tree. Do not plant too deep, 3in. or 4in. to the crown is ample depth. Do not continue planting in the rain or if soil is very wet; the soil must be friable. Prune off at the desired height, and tie to stake with a loose loop. Do not allow soil to cake about young trees at any time.

OLIVES.

Olives are wanted this year, every one of them. Therefore none should be wasted. They are no worse than plums to pick, and the price is much better. Make your own supply of oil if you do not want to sell your fruit.

ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, May 11th, there being present:—Messrs. C. J. Tuckwell (Chairman), W. S. Kelly, A. M. Dawkins, F. Coleman, T. H. Williams, W. J. Colebatch (Principal of the Roseworthy Agricultural College), and the Acting Secretary of the Advisory Board (Mr. H. J. Finnis). Apologies were received from Professor Arthur J. Perkins, Col. Rowell, C.B., and Mr. George Jeffrey.

Time of Fixing F.A.Q. Standard.—At the recent conference of Upper Northern Branches, a resolution was carried asking that the wheat standard should be fixed early in January. On reference to the Chamber of Commerce, that body pointed out that the committee meet early in the season for the purpose of deciding on the date for fixing the standard sample, and that the earliest date which the Committee considered possible was fixed. On two occasions of recent years, the decision had to be reviewed, and a later date fixed, as on account of late harvesting it would not have been possible to obtain a representative sample by the original date. For the season 1920-21 the f.a.q. sample was fixed in this State on February 2nd, which compared with the other States as follows:—Western Australia, February 16th; Victoria, February 24th.; New South Wales, March 11th.

Removal of Kangaroos from List of Protected Animals.—During the early part of last year a communication was received from the Nether-ton Branch asking that steps might be taken to have the kangaroos removed from the list of protected animals, on account of the damage they were doing to settlers' crops in that district. The Branch, in a further letter, stated that the settlers were not concerned about the marsupials on the cultivated land, but with those that were to be found on Crown lands adjacent to the holdings of farmers. The communication pointed out that the damage that was done was not noticeable in the early growing stages of the crop, but when the wheat came to be harvested, one obtained an idea of the extent of the damage done by the kangaroos. Members of the Board expressed sympathy with the settlers in the position in which they were placed, and on the motion of Mr. T. H. Williams, seconded by Mr. F. Coleman, it was decided to submit the following resolution to the Minister:—"The Board is of the opinion that this matter should be investigated on the spot as soon as possible for the purpose of ascertaining the exact position."

Cream Testing by Government Officials.—In reply to a request from the Port Elliot Branch, that a Government expert should be sent around occasionally to test cream, the Government Dairy Expert (Mr. P. H. Suter) reported that the work had been carried out, but it could not be done to its fullest extent, because it would entail much work and expense. Only recently he had samples taken at several factories in the southern districts, including Port Elliot and Strathalbyn. The

check tests carried out by Mr. Apps (Assistant Dairy Expert) compared favorably with those of the factory. The position was not one of merely checking tests returned by factories, but one of full payment of butter made therefrom, including the overrun (moisture, salt, &c.). Under present conditions, there was no real check on the returns given cream suppliers by the factories, or their methods of manufacture, and it was in view of that that he had endeavored to completely protect producers by including all that was necessary in the proposed dairy legislation. The Secretary was instructed to forward a report to the Branch. On the motion of Mr. Coleman, seconded by Mr. Kelly, it was also decided to ask that the Board might be allowed the opportunity of perusing the proposed Dairy Bill before it was submitted to Parliament.

Enforcement of Personal Residence Clauses.—Communications were received from the Glencoe Conference and the Coomandook Branch, stating that the owners of certain blocks in those districts were not complying with the personal residence clause of the Land Settlement Act. The Secretary was instructed to forward the matters to the Lands Department for report.

Dockage of Wheat.—The following resolution was received from the Whyte-Yarcowie Branch:—"That this Branch expresses its dissatisfaction at the inconsistent attitude of the Wheat Board in the dockage of wheat, and desires to know the means whereby the dockage was arrived at." Received.

Spraying for Downy Mildew.—The Renmark Branch resolved:—"That in view of the evidence of the existence of downy mildew in the Renmark district, the Government be requested to declare spraying compulsory in the said district." It was decided to refer the resolution to the forthcoming conference of River Murray Branches.

Ayrshire Bull for Kybybolite.—At a recent meeting of the Kybybolite Branch, it was decided:—"As the local Experiment Farm is likely, in the near future, to be introducing a new bull into its herd, this Branch requests that an Ayrshire bull of the very best type, with high officially tested milk and butter records, be procured." The Secretary was instructed to forward the resolution to the Minister of Agriculture, with the recommendation of the Board.

Manufacture of Sugar from Beet Grown at Millicent.—A communication was received from the Millicent Branch, asking that a truck of beets from those now growing on the experimental plots might be forwarded to the sugar beet factory at Maffra, to be converted into sugar, and returned to Millicent for local distribution. The Board decided to ask the Director of Agriculture for a report on the matter.

Referendum on the Pooling of Wheat.—The following resolution from the Narridy Branch was "received":—"That this Branch insists that a referendum of the farmers be taken whether the future wheat crops of Australia shall be pooled or otherwise."

Milling Values of Wheat.—At a Bureau Conference recently held at Kadina, a resolution was carried asking the Government to determine the relative milling values of bleached and unbleached wheat. The Secretary reported that he had been in communication with the Wheat Harvest Board, who had stated that arrangements had been made to test the qualities of the wheat.

Appointment of Sheep and Wool Expert.—The Chairman (Mr. C. J. Tuckwell) brought under the notice of the Board the fact that the Chamber of Commerce were urging the Government to appoint a sheep and wool expert. Mr. W. S. Kelly strongly urged that the Board should support the action of the Chamber of Commerce in the matter. There was no appointment that would be more profitable to the State than that of a wool instructor. Practically the whole of the time of the Wool Instructor at the School of Mines had to be devoted to the larger shearing sheds and stations. The more he saw of the Agricultural Bureau the more he was convinced that their efficiency depended to a large extent on the availability of expert officers to lecture to the members of the Branches. Mr. W. J. Colebatch (Principal Roseworthy Agricultural College) said there was still a large field to be covered, and there was no doubt that the members of the Bureau placed a great deal of value on the visits that they received from the expert officers. Mr. A. M. Dawkins said it did not seem right that the Department should always have to make application to the School of Mines when they wanted any information regarding sheep and wool. Mr. T. H. Williams said the Department of Agriculture in South Africa had recently appointed a Wool Instructor, and he had been responsible for a lot of good work in the sheep industry. On the motion of Mr. Kelly, seconded by Mr. Williams, it was decided:—"That in view of the good work that has been done by Mr. Codrington in his capacity as Wool Instructor at the School of Mines and Industries, and the fact that there is a large field still to be covered, the Board regards with much satisfaction the action of the Chamber of Commerce in urging that a sheep and wool expert should be appointed to the staff of the Department of Agriculture."

Pruning Competitions.—At the last meeting of the Board, a scheme for holding a series of pruning competitions for blockers on the River Murray areas was outlined by the Secretary. After the favorable opinion of the Board had been expressed, the Secretary was instructed to ask the Minister that two silver cups, for the successful competitors in the vine and tree pruning divisions, might be donated, and also travelling expenses for the judges provided. A reply was received from the Minister intimating that in view of the necessity for absolute economy, he could not agree to the proposal to meet the expenses of the judges. The Chairman (Mr. C. J. Tuckwell) had interviewed the Minister, who stated that the Government were willing to agree to the granting of certificates of merit to all those competitors who obtained 80 per cent. or over of the points, but he could not approve of the expenditure for the judges' travelling allowances.

Congress, 1921.—On the motion of Mr. F. Coleman, seconded by Mr. A. M. Dawkins, it was decided to make application to the Government for permission to hold the Annual Congress of Agricultural Bureaux in September, 1921.

Date of Next Meeting.—It was decided that the next meeting of the Board would be held on Friday, June 3rd.

Registration of Veterinary Surgeons.—The Chief Inspector of Stock (Mr. T. H. Williams) said he would be glad of the support of the Board in urging the passing of the Veterinary Surgeons Bill, which

was to be brought before Parliament during the next session. The passing of the Act would afford a protection that was very badly needed to stockowners. Some shocking cases of the treatment that was meted out to sick stock had come under his notice, and he was convinced that if the Bill was passed, practices would be established throughout the country by qualified veterinary men. Mr. Williams then moved:—"That the Minister of Agriculture be asked to do all in his power to get the Veterinary Surgeon Bill passed during the coming session in Parliament."

Branding Calves.—Mr. Williams also brought under the notice of the Board the fact that many people were puzzled as to how they should brand calves sent to the Abattoirs market, so that the animals could be recognised by the agents. Those stockowners who did not own registered brands were infringing the law, and although summonses had not yet been issued, action would have to be taken to prevent further breaches of the Act. The people who did own registered brands objected to their use on the grounds that a fire brand damaged the hide; but the Act allowed them to use a paint brand or a clip brand, which would not injure the hide or inflict any cruelty on the calf.

Inspector of Apiaries.—The Conference of Lower Northern Branches resolved that an Inspector of Apiaries should be appointed. A report dealing with the value of the industry was prepared by the Secretary, which showed that honey to the value of £33,324 was produced in 1918-19, and £11,520 in 1919-20. Last year there were 11,719 productive hives, and 7,385 unproductive hives. The export value of honey ranged from £4,000 in 1916-17, to £46,628 in 1918-19. The Chairman said that was enough to show the importance of the industry. It should be looked after by an efficient inspector, as foul brood and other diseases could sweep off whole colonies of bees. The question was deferred for three months.

New Branches.—Approval was given for the formation of Branches of the Agricultural Bureau at Rockwood, Cadell, and Virginia, with the following gentlemen as foundation members:—Cadell—E. D. Fowler, A. R. Yeo, R. J. and L. Kingsborough, D. Dunk, W. E. Scott, Dunstone, Wilson, Parker, Davenport, H. South, Greenslade, Shields, J. Oswald, H. Bryant, W. Mudge, K. Gurr, W. Woolforde, Davis, G. Priest, L. Sholl, F. Heinrich, F. Shaw, S. Thompson, A. Hurley, F. Glennie, D. Black, Hughes, R. Shepley, F. Hodge, T. Caddy, R. Fleming, A. Tonkin, K. Hendrie, A. Watson, J. Williamson, A. Hoff, F. Cook, C. Virgo, F. Allan, W. Vasey, H. Claxton, M. Young, F. Claxton, K. MacIntosh, F. and R. Frankel, L. Watts, A. Madigan, R. Thane, C. Greenham, M. Murdoch, R. Gilmor, P. E. Yimmo, W. Jorgensen, D. Hall, R. Selth, D. Gordon, H. Gleeson, H. Coxall; Virginia—W. H. Lang, A. Townsend, N. Hall, P. Baker, S. Clements, I. Baker, K. Smitham, O'Loughlin, A. Hatcher, A. Taylor, M. Maloney, W. M. Wright, J. A. Ryan, W. S. King, C. Clements, T. Barker, H. H. Spehr, W. G. Taylor, E. Stanton, G. Fleming, L. R. Taylor; Rockwood—J. J. Bradford, H. C. Dunn, J. T. Steed, A. Carter, S. Weary, A. E. Henley, B. Henley, P. Henley, C. Heath, F. Ness, F. A. Powell, L. H. Powell, R. D. Bawley, T.

McGuinness, H. Galpin, H. Green, E. Galpin, J. Jolley, W. Edwards, A. Cameron, H. Diener, M. J. Myers, H. C. Hodgson.

Branch to be Closed.—It was decided to close the Mantung Branch.

New Members.—The following names were added to the rolls of existing Branches:—Maitland—A. J. Bridgeman, W. S. Hill; Millicent, R. Varcoe, S. S. Smith; Elbow Hill—A. W. Wheeler; Rosenthal—W. Rucks; Salisbury—S. Harrington, sen., H. L. Martin, A. Snell; Glencoe—K. W. Agnew, D. S. Baird; MacGillivray—P. Leopold; Kingston-on-Murray, G. J. Holmes; Balaklava, G. Inkster, D. McArthur; Berri—H. C. Howie, E. C. Ridley; Lake Wangary—H. Woods; Mallala—F. Arnold; Parilla—Gehle; Dowlingsville—F. Z. Waters, R. G. Wheateroft; Willowie—S. Brooks, A. E. Tozer; Roberts and Verran—Geo. Drayton; McLachlan—R. Green, G. Jericho; Kilkerran—M. J. Millane; Williamstown—W. J. W. Bain, P. Ross, T. C. Patterson, L. Tobitt, P. C. Wilson, C. H. Fromm, A. Springbett, jun., H. N. Wilson, J. Osbourne, E. J. Powell, R. Filsell, S. Hobby; Laura—N. Chambers; Strathalbyn—F. C. White, Jas. Tucker, A. Verner, E. B. Saunders; Lone Pine—A. C. Lehmann, J. Knispel; Hawker—H. W. B. Smith, L. P. Smith; Bute—E. V. Heinrich, R. L. Dennis; Aldinga—A. Lowe, W. Martin, M. Stone; Lone Gum—M. Dwyer, A. Hunt, S. W. Horton, M. Nicholas, A. E. McHugh, L. H. Maddern, H. Millington, F. Cross; Beetaloo Valley—J. Richards; Port Broughton—T. R. J. Humphris; Renmark—F. W. Harris, R. A. Harris, K. T. Tier, A. Dalton, J. M. H. Price, R. Fisher, R. Jackson; Waikerie—S. S. Caporn, E. L. Frith; Milang—Alex. Moar; Two Wells—H. O. J. Robinson, M. B. Pratt, H. Day; Coomandook—R. A. Williams, Goodale, Hunt; Nantawarra—C. G. Nicholls; Ki Ki—H. Winter, E. Cooley; Meadows—S. Giles; Collie—R. H. Ross, V. G. Barnes; Lameroo—W. J. Dowd, R. J. Billing, Dr. John C. Mayo.

EYE TROUBLE WITH SHEEP.

Contagious inflammation of the eye, a common trouble amongst sheep, was recently brought under notice by a correspondent who reports that the eyes of his sheep gradually become covered with a pink film, which changes to a white color as the disease intensifies, and finally results in the animal becoming totally blind. The Government Veterinary Surgeon (Mr. C. A. Loxton, B.V.Sc.), to whom this inquiry was submitted, intimates that it would be advisable to separate the affected animals, so that suitable arrangements for feeding, watering, and dressing can be made. The disease usually runs a benign course, though in a small percentage of cases permanent blindness results from structural changes in the eye following an acute inflammation. Boracic acid in the powder form should not be used. It can be used as a lotion by dissolving one tablespoonful in a quart of water. Use this to bathe the eyes if there is much discharge. Apply a few drops of the following lotion with an eyedropper:—Sulphate of zinc, 8grs.; tincture of opium, 1½drs.; water, 4oz. (mix). Another useful preparation is yellow oxide of mercury ointment, half strength. Place a small piece of this ointment within the lower lid, hold the lids together for a moment, so that the ointment is distributed over the eye. This can be used daily, and is probably easier of application than the lotion.

EGG-LAYING COMPETITION, 1921-1922.

HELD AT THE PARAFIELD POULTRY STATION, PARAFIELD, UNDER THE DIRECTION
OF D. F. LAURIE (GOVERNMENT POULTRY EXPERT AND LECTURER).

Total No. of Pens.—Section I., Light Breeds (Single Testing), 24—3 pullets in each entry. Section II., Heavy Breeds (Single Testing), 13—3 pullets in each entry. Section III., Light Breeds, 25 pullets in each pen. Section IV., Heavy Breeds, 9—6 pullets in each pen.

TWELVE MONTHS' TEST. TO START ON MARCH 1st, 1921, AND TO TERMINATE ON FEBRUARY 28th, 1922.

SECTION I.—LIGHT BREEDS (SINGLE TESTING). THREE PULLETS IN EACH ENTRY

Row No.	Name and Address.	Bird No.	Month ending 31/5/21.	Score to Date.	Bird No.	Month ending 31/5/21.	Score to Date.	Bird No.	Month ending 31/5/21.	Score to Date.
WHITE LEGHORNS.										
E	Bamford, W. H., 74, Adelaide Road, Glenelg	1	22	42	2	24	38	3	15	
E	Connor, D. C., Gawler	4	16	31	5	22	31	6	19	
E	Willington, Mrs. G., Milang	7	20	56	8	9	17	9	17	
E	Nancarrow, J. T., Plympton	10	6	10	11	—	9	12	19	
E	Broadview Poultry Farm, Seaton Park	13	—	21	14	11	24	15	15	
E	Stevens, H. J., Broken Hill	16	—	13	17	14	14	18	23	
E	Monkhouse, A. J., Woodside	19	—	15	20	3	16	21	22	
E	Turvey, D. J., Milang	22	—	1	23	—	—	24	—	
E	Lampert, Mrs. S., Piccadilly	25	10	11	26	—	—	27	—	
E	Nancarrow, J. T., Plympton	28	—	18	29	19	19	30	16	
E	Small, E. W., Mount Gambier	31	12	12	32	24	27	33	10	
E	Coleman, A. C., Grange	34	17	17	35	—	—	36	19	
E	Broadview Poultry Farm, Seaton Park	37	19	30	38	13	33	39	16	
E	Holmes, F. A., Naracoorte	40	9	9	41	7	7	42	—	
E	Lampert, Mrs. S., Piccadilly	43	18	36	44	—	7	45	—	
E	Green, F. W. H., Monteith	46	1	7	47	5	25	48	3	
E	Howie, H. H., Mount Gambier	49	20	20	50	17	25	51	19	
E	Willmott, H. J., Clarence Park	52	10	10	53	—	—	54	—	
E	Stockman, A., Goodwood	55	22	39	56	—	1	57	—	
E	Green, A. J., Crystal Brook	58	17	30	59	17	28	60	22	
E	Herbert, C., Alberton	61	6	6	62	18	18	63	18	
E	Blake, Mrs. B. L., Berowra, N.S.W.	64	21	34	65	20	35	66	24	
F	Tilly, P. N., Balwyn, Victoria	1	17	29	2	20	35	3	11	
F	Dugan, T., Wingfield Rifle Range, Port Adelaide	4	23	44	5	23	33	6	19	
	Totals	—	286	541	—	266	440	—	308	

SECTION 2.—HEAVY BREED (SINGLE TESTING). THREE PULLETS EACH ENTRY

BLACK ORPINGTONS.

F	Lampert, Mrs. S., Piccadilly	7	—	28	8	6	25	9	24
F	Shaw, R. R., Crystal Brook	10	—	1	11	—	—	12	15
F	Farr, K. H., Fullarton Estate	13	16	44	14	22	47	15	—
F	Alford, T., Broken Hill	16	23	68	17	15	44	18	24
F	Lampert, Mrs. S., Piccadilly	19	23	26	20	16	57	21	—
F	Holmes, F. A., Naracoorte	22	—	—	23	13	13	24	7
F	Shaw, R. R., Crystal Brook	25	—	—	26	—	—	27	—
F	Wheaton, S. P., Bute	28	—	22	29	—	13	30	—
F	Bansemmer, Mrs. B., Beaumont	31	18	44	32	27	55	33	30
F	Farr, K. H., Fullarton Estate	34	24	52	35	22	48	36	18
F	Mortimer, G., Broken Hill	37	18	46	38	24	47	39	25

SECTION 2.—HEAVY BREEDS (SINGLE TESTING). THREE PULLETS IN EACH ENTRY.

Row No.	Name and Address.	Bird No.	Month ending 31/3/21.	Score to Date.	Bird No.	Month ending 31/3/21.	Score to Date.	Bird No.	Month ending 31/3/21.	Score to Date.
RHODE ISLAND REDS.										
F	Stockman, A., Goodwood	40	19	31	41	10	19	42	3	3
F	Tester, G., Naracoorte	43	14	14	44	—	—	45	—	—
Totals		—	155	376	—	155	368	—	146	313

SECTION 3.—LIGHT BREEDS (PEN TESTS). SIX PULLETS IN EACH PEN.

Pen No.	Name and Address.	Breed.	Eggs Laid for Month Ending 31/5/21.	Total Eggs Laid from 1/3/21 to 31/5/21.
1	Anderson, S., Gawler Railway	White Leghorns	73	216
2	Pugsley, A., Hindmarsh	"	43	179
3	Connor, D. C., Gawler	"	31	140
4	Willington, Mrs. G., Milang	"	23	143
5	Norton Bros., Seaton Park	"	41	138
6	Nancarrow, J. T., Plympton	"	52	90
7	Small, E. W., Mount Gambier	"	91	148
8	Buchan, J. S., Seaton Park	"	48	167
9	Anderson, J., Prospect	"	21	103
10	Pugsley, A., Hindmarsh	"	43	136
11	Alford, T., Broken Hill	"	67	139
12	Pool, F. J., North Norwood	"	7	123
13	Nancarrow, J. T., Plympton	"	83	189
14	Smith & Gwynne, Gawler South	"	21	171
15	Ratten, C. A., Mile End	"	35	182
16	Howie, H. H., Mount Gambier	"	70	238
17	Willmott, H. J., Clarence Park	"	61	93
18	Anderson, Wm., Kapunda	"	74	262
19	Herbert, C., Alberton	"	61	152
20	Sparrow, F. H. L., Beverley	"	89	264
21	Clee Hill Stud Poultry Farm, Box Hdl, Victoria	"	49	165
22	Beythein, E. W., Scott's Creek	"	21	95
23	Provis & Sons, W., Tumby Bay	"	54	154
24	Dugan, T., Wingfield Rifle Range, Port Adelaide	"	73	162
25	Bansemer, Mrs. B., Beaumont	"	65	259
Totals			1,296	4,117

SECTION 4.—HEAVY BREEDS (PEN TEST). SIX PULLETS EACH ENTRY.

26	Lampert, Mrs. S., Piccadilly	Black Orpingtons	36	179
27	Farr, K. H., Fullarton Estate	"	51	158
28	Bansemer, Mrs. B., Beaumont	"	—	—
29	Farr, K. H., Fullarton Estate	"	72	192
30	Lampert, Mrs. S., Piccadilly	"	84	269
31	Alford, T., Broken Hill	"	44	44
32	Clee Hill Stud Poultry Farm, Box Hill, Victoria	"	105	268
33	Lampert, Mrs. S., Piccadilly	"	136	355
34	Ryan, Jas., Coburg, Victoria	Rhode Island Reds	137	317
Totals			665	1,782

DIVISION B.—STANDARD BREEDS ONLY.

19 Pens each of 6 Birds—114 Birds.

COMMENCING APRIL 1ST, 1921. TERMINATES FEBRUARY 28TH, 1922.

Pen No	Name and Address.	Breed.	Eggs Laid for Month Ending 31/5/21.	Total Eggs Laid from 1/4/21 to 31/5/21.
37	*Lampert, Mrs. S., Piccadilly	White Leghorns.....	—	—
38	*Newcombe, E. G., Alberton	"	—	—
39	Packham, C. D., Kensington Park...	"	41	61
40	*Beythien, E. W., Scott's Creek.....	"	—	—
42	Packham, C. D., Kensington Park...	"	55	74
43	*Newcombe, E. G., Alberton	"	—	—
44	Belmont Orpington Yards, Evandale.	Black Orpington	69	112
45	*Lampert, Mrs. S., Piccadilly	"	—	—
46	*Farr, K. H., Fullarton Estate	"	—	—
47	Bansemer, Mrs. B., Beaumont	"	61	75
48	Addison, Mrs. A. L., Malvern	Rhode Island Red....	47	59
49	*Beer, A. C., Gilberton	"	—	—
50	Hill, H. V., West Adelaide	"	26	48
51	*Beer, A. C., Gilberton	"	—	—
52	Perkins, C. W., North Norwood	Silver Wyandotte	61	62
53	Addison, A. L., Malvern	White Wyandotte	26	38
54	Bagshaw, W. E., Hermitage	White Rocks	68	108
55	Bagshaw, W. E., Hermitage	Barred Rocks.....	30	46
Totals			484	683

* Not in accordance with standard.

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of Australia, Ltd.)**The Insurance Office of
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The Separator that
gets ALL the cream.
Over 12,000 sold in
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9gall. ..	£6 10s.
12gall. ..	£3 0s.
18gall. ..	£11 0s.
22gall. ..	£13 0s.
30gall. ..	£14 5s.
33gall. ..	£15 15s.
45gall. ..	£22 0s.
65gall. ..	£30 0s.
105gall. ..	£41 0s.
135gall. ..	£47 10s.

ONE MONTH'S FREE TRIAL.

All particulars from —

A. W. DOBBIE & Co.,
GAWLER PLACE, ADELAIDE.
Ltd.,

RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show the rainfall at the subjoined stations for the month of and to the end of May, 1921, also the average precipitation to the end of May, and the average annual rainfall.

Station.	For May, 1921.	To end May, 1921.	Average to end May.	Average Annual Rainfall.	Station.	For May, 1921.	To end May, 1921.	Average to end May.	Average Annual Rainfall.
FAR NORTH AND UPPER NORTH.					LOWER NORTH—continued.				
Abindarra	3.45	5.93	2.26	4.73	Spalding	3.78	9.38	5.37	20.18
Arree	1.29	3.19	2.50	6.02	Gulnare	3.52	9.28	5.05	18.97
Arree	1.22	3.33	2.81	6.57	Yacka	3.45	8.47	4.60	15.27
Arree	1.73	4.93	3.66	8.30	Koolunga	3.48	9.52	4.78	15.73
Arree	2.47	6.64	3.69	8.93	Snowtown	3.08	10.13	4.94	15.87
Arree	1.78	7.22	4.89	12.52	Brinkworth	3.12	8.02	4.75	15.91
Arree	2.22	11.27	2.58	7.33	Blyth	5.10	10.39	5.42	16.55
Arree	3.06	13.59	3.78	12.65	Clare	6.42	12.32	7.54	24.47
Arree	3.50	14.96	3.89	12.37	Mintaro	4.41	9.93	6.42	23.07
Arree	4.16	15.09	3.79	11.85	Watervale	4.22	9.86	5.28	27.48
Arree	4.25	19.06	3.35	10.43	Auburn	3.31	10.74	7.65	17.82
Arree	3.24	17.92	4.29	13.79	Hayleton	3.62	8.32	5.73	15.82
Arree	1.49	14.68	3.59	9.42	Balaklava	2.61	7.08	5.40	13.14
Arree	1.57	13.96	3.14	9.36	Port Wakefield	3.49	10.20	4.98	13.54
Arree	2.40	15.17	3.06	9.99	Terowie	1.84	9.85	4.29	13.97
Arree	2.43	15.49	3.78	11.36	Yarcowie	2.21	10.09	4.48	13.54
Arree	4.14	20.63	5.60	18.06	Hallett	2.85	8.73	4.73	16.28
Arree	2.18	11.85	5.72	11.82	Mount Bryan	3.08	9.22	4.45	16.38
Arree	3.76	21.15	7.34	23.11	Burra	4.34	9.80	5.54	17.91
Arree	2.33	12.31	4.76	15.51	Farrell's Flat	5.16	9.82	5.66	18.87
Arree	1.83	12.89	4.54	12.65	WEST OF MURRAY RANGE.				
Arree	3.27	15.57	5.84	19.44	Manoora	3.54	9.23	5.47	18.54
Arree	1.74	10.00	4.26	14.90	Saddleworth	3.55	9.30	6.35	19.75
Arree	3.29	15.87	3.48	10.82	Marrabel	3.87	10.69	5.89	19.44
Arree	2.81	15.46	3.91	12.34	Riverton	2.07	7.94	6.58	20.74
Arree	3.42	16.95	3.28	10.22	Tarlee	2.18	7.04	5.72	17.86
Arree	2.78	12.91	4.23	13.11	Stockport	2.20	9.14	5.07	16.36
Arree	2.38	15.74	4.53	13.42	Hamley Bridge	2.37	8.87	5.28	16.52
Arree	2.96	14.30	3.73	10.63	Kapunda	2.67	8.92	6.42	19.85
Arree	2.02	14.65	4.29	12.29	Freeling	2.47	7.33	5.56	17.95
Arree	1.89	9.68	3.85	11.65	Greenock	2.59	9.81	6.47	21.73
Arree	1.97	9.82	4.47	13.82	Truro	3.80	12.73	5.95	20.18
Arree	2.30	10.31	4.45	14.13	Stockwell	3.61	10.79	5.97	20.40
LOWER NORTH-EAST.					Nuriootpa	3.29	10.86	6.14	21.09
Arree	2.51	11.45	3.36	8.40	Angaston	3.89	10.77	6.57	22.64
Arree	2.00	9.37	3.02	8.16	Tanunda	3.86	9.18	6.81	22.33
Arree	1.23	13.70	3.21	8.51	Lyndoch	3.84	9.48	6.39	22.81
Arree	1.24	7.91	3.33	8.03	Williamstown	3.55	9.16	7.76	27.74
Arree	1.44	8.75	3.81	9.89	ADELAIDE PLAINS.				
LOWER NORTH.					Mallala	3.21	7.70	5.41	16.61
Arree	3.40	12.61	4.66	13.26	Roseworthy	3.03	6.95	5.42	17.37
Arree	4.38	10.79	4.65	14.13	Gawler	2.76	7.56	5.93	19.14
Arree	4.62	10.13	4.83	15.55	Two Wells	3.26	6.50	5.29	15.91
Arree	2.20	10.97	5.47	18.12	Virginia	2.93	6.79	5.74	17.11
Arree	2.47	11.59	5.25	17.02	Smithfield	2.87	6.52	5.37	17.33
Arree	2.27	10.41	5.19	17.56	Salisbury	3.16	6.77	6.22	18.52
Arree	3.54	9.40	4.80	17.56	North Adelaide	5.62	10.58	6.69	21.87
Arree	1.75	9.77	4.91	16.05	Adelaide	4.56	8.80	6.80	21.01
Arree	4.53	13.22	4.93	15.62	Glencelg	3.35	6.85	5.94	18.42
Arree	2.88	9.00	5.79	18.30	Brighton	4.44	9.42	6.49	21.03
Arree	2.99	8.78	5.23	16.43	Mitcham	5.63	10.26	7.23	23.68
Arree	5.76	12.63	5.18	16.66	Glen Osmond	5.35	9.34	8.87	25.73
					Magill	4.35	8.37	8.10	25.98

RAINFALL—continued.

Station.	For May, 1921.	To end May, 1921.	Average to end May.	Average Annual Rainfall	Station.	For May, 1921.	To end May, 1921.	Average to end May.	Average Annual Rainfall
MOUNT LOFTY RANGES.					WEST OF SPENCER'S GULF—continued.				
Teetree Gully.....	4 40	8 83	8 56	27 73	Port Lincoln.....	2 07	4 11	5 82	
Stirling West.....	7 42	14 95	13 32	48 82	Tumby.....	1 83	6 78	4 15	
Uraidla.....	7 15	13 79	12 76	44 49	Carrow.....	2 09	7 81	3 88	
Clarendon.....	5 19	12 35	10 31	33 18	Arno Bay.....	1 82	10 89	4 01	
Morphett Vale.....	4 19	9 05	7 21	22 90	Cleve.....	2 24	11 31	—	
Noarlunga.....	4 19	8 88	6 45	20 21	Cowell.....	2 42	5 14	4 30	
Willunga.....	4 84	10 03	8 16	25 82	Point Lowly.....	3 18	13 34	4 03	
Aldinga.....	5 63	9 51	6 27	20 22					
Myponga.....	7 04	13 04	—	—	YORKE PENINSULA.				
Normanville.....	6 14	11 49	6 47	20 53	Walleroo.....	3 82	10 93	5 00	
Yankalilla.....	5 71	11 32	7 27	22 93	Kadina.....	4 19	11 89	5 36	
Mount Pleasant.....	3 71	11 67	7 66	27 01	Moonta.....	4 56	11 03	5 36	
Birdwood.....	3 79	10 83	8 06	29 43	Green's Plains.....	3 92	9 46	4 85	
Gumeracha.....	4 44	11 34	9 63	33 33	Maitland.....	5 51	10 80	6 35	
Millbrook Rsvr.....	4 41	10 63	—	—	Androssan.....	2 94	9 96	4 55	
Tweedvale.....	4 94	12 03	9 56	35 60	Port Victoria.....	3 64	8 55	5 07	
Woodside.....	4 31	11 38	8 67	32 05	Curramulka.....	3 39	7 07	5 44	
Ambleside.....	4 54	12 54	9 44	34 81	Minlaton.....	4 51	9 62	5 39	
Nairne.....	3 05	9 66	8 38	28 58	Brentwood.....	5 39	9 75	4 52	
Mount Barker.....	4 16	11 53	9 23	31 10	Stansbury.....	4 68	8 97	5 24	
Echunga.....	4 81	11 25	9 95	32 94	Warooka.....	5 02	9 19	5 32	
Macclesfield.....	3 71	9 84	8 85	30 60	Yorketown.....	4 19	8 38	5 18	
Meadows.....	4 84	10 85	10 59	36 26	Edithburgh.....	3 54	7 82	5 33	
Strathalbyn.....	2 53	7 49	6 21	19 28					
MURRAY FLATS AND VALLEY.					SOUTH AND SOUTH-EAST.				
Meningie.....	2 29	5 71	5 95	18 77	Cape Borda.....	4 47	6 42	7 21	
Milang.....	1 98	5 39	5 18	15 56	Kingscote.....	3 81	6 22	5 76	
Langhorne's Bdge.....	3 02	8 19	4 70	14 59	Penneshaw.....	4 24	7 25	5 33	
Wellington.....	2 60	7 98	4 97	14 82	Victor Harbor.....	2 72	7 05	6 80	
Tailem Bend.....	3 54	9 12	4 60	24 55	Port Elliot.....	3 50	7 53	6 51	
Murray Bridge.....	2 57	9 03	4 71	13 98	Goolwa.....	3 21	9 53	6 04	
Callington.....	2 71	6 46	5 00	15 45	Karoonda.....	3 88	9 85	—	
Mannum.....	2 63	8 61	4 17	11 61	Mindarie.....	2 02	5 64	—	
Palmer.....	3 21	9 18	4 33	15 23	Meribah.....	2 27	5 89	—	
Sedan.....	3 41	10 17	3 92	12 07	Pinnaroo.....	2 92	12 21	4 83	
Swan Reach.....	2 82	10 45	3 43	10 80	Parilla.....	3 56	7 71	4 04	
Blanchetown.....	2 26	6 72	3 79	10 26	Lameroo.....	3 57	7 90	4 87	
Eudunda.....	2 72	9 80	5 29	17 51	Parrakie.....	2 84	7 27	4 22	
Sutherlands.....	3 12	8 07	4 09	10 90	Geranium.....	3 51	7 30	4 72	
Morgan.....	2 61	8 37	3 09	9 13	Peake.....	3 45	7 59	4 81	
Waikerie.....	1 63	8 54	3 03	9 41	Cooke's Plains.....	2 60	8 01	4 54	
Overland Corner.....	1 17	6 46	3 97	11 11	Coomandook.....	3 81	9 82	5 10	
Loxton.....	1 83	6 57	4 18	12 27	Coonalpyn.....	2 48	5 51	5 28	
Renmark.....	1 34	7 64	3 70	10 92	Tintinara.....	2 35	5 62	5 58	
WEST OF SPENCER'S GULF.					Keith.....	1 55	6 31	5 49	
Eucla.....	2 84	3 49	4 45	10 03	Bordertown.....	1 76	5 09	5 90	
White Well.....	—	—	3 10	9 24	Wolseley.....	1 82	5 55	5 43	
Fowler's Bay.....	2 48	4 38	4 07	12 11	Frances.....	1 97	5 06	5 69	
Penong.....	4 54	7 32	4 08	12 26	Naracoorte.....	2 10	6 89	6 64	
Murat Bay.....	2 98	5 86	3 03	10 47	Penola.....	2 04	5 24	7 95	
Smoky Bay.....	2 48	5 75	3 20	10 37	Lucindale.....	2 68	6 28	6 55	
Petina.....	3 34	7 18	3 70	12 97	Kingston.....	2 54	5 75	7 31	
Streaky Bay.....	2 68	6 57	4 51	15 09	Robe.....	2 24	4 71	7 33	
Talia.....	2 88	7 05	3 63	15 35	Beachport.....	2 46	4 84	8 15	
Port Elliston.....	1 46	4 03	4 51	16 37	Millicent.....	2 32	5 72	9 02	
Cummins.....	2 15	5 92	—	—	Kalangadoo.....	2 46	6 79	—	
					Mount Gambier.....	2 40	5 59	9 86	

AGRICULTURAL BUREAU REPORTS.

INDEX TO CURRENT ISSUE AND DATES OF MEETINGS.

Branch.	Report on Page	Dates of Meetings.		Branch	Report on Page	Dates of Meetings.	
		June.	July.			June.	July.
Alawoons	•	—	—	Frances	974	25	30
Aldinga	•	13	16	Freeling	•	—	—
Amyton	•	—	—	Gawler River	•	20	18
Angaston	•	—	—	Georgetown	•	18	16
Appila-Yarrowie	•	—	—	Goramin	•	25	30
Arthurton	•	—	—	Gladstone	951	20	16
Ashbourne	966	20	—	Glencoe	•	—	—
Balaklava	•	11	9	Glossop	963	—	—
Barnera	•	—	—	Gocde	•	22	20
Beetaloo Valley	949	15	13	Green Patch	963	—	18
Belalie North	•	18	16	Gumeracha	•	20	18
Berri	965	22	20	Halidon	•	—	—
Big Swamp	•	—	—	Hartley	969	15	20
Blackheath	•	18	—	Hawker	•	21	19
Black Springs	952	—	—	Hilltown	•	—	—
Blackwood	•	20	18	Hookina	•	16	14
Blyth	•	18	23	Inman Valley	•	—	—
Booleroo Centre	•	17	15	Ironbank	972	18	16
Borrika	•	—	—	Julia	•	—	—
Bowhill	•	—	—	Kadina	•	—	—
Brentwood	•	16	14	Kalbaradoo	•	11	9
Brinkley	963	18	16	Kamantoo	•	18	16
Bundaleer Springs	•	—	—	Keith	974	—	—
Burra	•	—	—	Ki Ki	•	—	—
Bute	•	14	19	Kilkerran	955	16	14
Butler	•	20	—	Kimba	•	—	—
Caltowie	•	—	—	Kingscote	•	—	—
Canowie Belt	•	—	—	Kingston-on-Murray	966	—	—
Carrow	•	15	20	Kongoroo	•	16	14
Cherry Gardens	969-71	14	19	Koonibba	•	16	14
Clanfield	•	—	—	Koppio	969	20	18
Clare	•	7	5	Kybybolite	•	16	14
Clarendon	971	20	18	Lake Wangary	•	20	21
Claypan Bore	•	22	20	Lameroo	•	—	—
Cleve	957	15	20	Laura	•	17	22
Collie	963	—	—	Leighton	•	—	—
Colton	•	—	—	Lenawood and Forest Range	•	11	—
Coomandook	•	24	29	Lone Gum	964	15	—
Coonaplyn	•	—	—	Lone Pine	•	21	—
Coonawarra	•	—	—	Longwood	•	18	16
Coorabee	•	—	—	Loxton	•	—	—
Cradock	•	—	—	Lucindale	972	—	—
Crystal Brook	•	18	16	Lyndoch	955	16	14
Cunmmins	•	18	23	MacGillivray	972	15	20
Cygnat River	971	16	14	McLachlan	•	4	2
Dawson	•	—	—	Maitland	•	4	2
Denial Bay	•	—	—	Mallala	955	6	4
Dowlingville	957	—	—	Mangalo	•	—	—
Edillilie	•	25	30	Meadows	969	15	20
Elbow Hill	•	25	23	Meningie	•	—	—
Eurelia	•	—	—				

INDEX TO AGRICULTURAL BUREAU REPORTS—continued.

Branch	Report on Page	Dates of Meetings.		Branch	Report on Page	Dates of Meetings.	
		June.	July.			June.	July.
Meribah	•	15	20	Renmark	•	16	15
Milang	970	11	9	Riverton	•	—	—
Millicent	•	4	2	Riverton (Women's) ..	•	—	—
Miltalie	959	18	16	Roberts and Verran ..	959	20	18
Mindarie	•	6	4	Rockwood	†	—	—
Minlaton	•	17	15	Rosedale	†	—	—
Minnipa	•	—	—	Rosy Pine	966	—	—
Mintaro	951	18	16	Saddleworth	953	18	—
Monarto South	†	—	—	Saddleworth (Women's)	•	—	—
Moonta	956	17	15	Salisbury	956	7	5
Mooreak	972	—	—	Salt Creek	†	—	—
Moorlands	•	—	—	Sandalwood	974	—	—
Moorook	966	—	—	Sherlock	•	—	—
Morchard	†	18	16	Shoal Bay	972	—	—
Morgan	•	—	—	Smoky Bay	963	18	16
Morphett Vale	972	16	21	Spelding	•	—	—
Mount Barker	•	15	9	Stockport	•	—	—
Mount Bryan	•	—	—	Strathalbyn	•	14	19
Mount Byran East ..	†	—	—	Talia	963	13	11
Mount Compass	•	—	—	Tantanoola	973	18	16
Mount Gambier	†	11	—	Taplan	966	25	23
Mount Hope	•	18	16	Tarcowie	†	14	19
Mount Pleasant	†	—	—	Tatiara	•	18	16
Mount Remarkable ..	•	—	—	Two Wells	954	—	—
Mundalla	•	15	20	Uraidla & Summertown	•	6	4
Mundoora	•	20	18	Veitch	•	—	—
Murray Bridge	964	—	—	Virginia	955	15	13
Myponga	•	15	20	Waikerie	•	—	—
Myponga	•	—	—	Wall	•	—	—
Nantawarra	952	16	21	Wanhi	•	—	—
Naracoorte	•	11	9	Warcowie	•	—	—
Narridy	†	18	16	Warrow	•	—	—
Narrung	•	18	23	Watervale	•	—	—
Netherton	•	—	—	Wepowie	•	18	16
North Boomerowie ..	•	—	—	Whyte-Yarcowie	•	—	—
North Bundaleer	•	—	—	Wilkawatt	•	18	16
Northfield	•	—	13	Williamstown	955	—	6
Nunkeri and Yurgo ..	•	6	3	(Women's)	•	—	—
O'Loughlin	•	15	—	Williamstown	955	—	—
Orroroo	•	—	—	Willowie	•	15	20
Parilla	•	—	—	Wilmington	949	15	20
Parilla Well	966	20	18	Wirrahara	950	18	—
Parrakie	•	—	—	Wirrega	•	—	—
Paruna	•	—	—	Wolowa	•	—	—
Paakeville	†	14	19	Woodside	•	18	16
Penola	974	4	2	Wudinna	960	—	—
Penong	•	—	23	Wynarka	•	—	—
Petina	•	25	30	Yahmana	•	—	—
Pine Forest	•	14	19	Yacka	951	14	19
Pinnaroo	•	17	22	Yadnarie	961	15	20
Pompoota	†	—	—	Yallunda	•	—	—
Port Broughton	•	17	15	Yaninee	•	—	—
Port Elliot	972	18	16	Yeelanna	963	18	16
Port Germein	•	13	16	Yongala Vale	•	17	15
Port Pirie	•	—	—	Yorketown	•	—	—
Ramco	966	20	18	Youghusband	966	23	21
Redhill	950	21	26				

* No report received during the month of May.

† Formal report only received.

‡ Held over until next month.

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

REPORTS OF BUREAU MEETINGS.

UPPER-NORTH DISTRICT.

(PETERBOROUGH AND NORTHWARD.)

WILMINGTON, April 27th.—An interesting discussion took place on the excellent opportunity that the short course for farmers at the Roseworthy Agricultural College provided for those members who were anxious to add to their knowledge of agriculture.

MIDDLE-NORTH DISTRICT.

(PETERBOROUGH TO FARRELL'S FLAT.)

BEETALOO VALLEY.

May 18th.—Present: 11 members and four visitors.

PROFITABLE FRUITGROWING.—In a paper under the title, "How to Make Fruit-growing Pay?", Mr. W. F. Carter said if one wished to obtain the maximum returns from the orchard the trees should not be neglected. The speaker thought that when fruitgrowing was carried on as a business proposition the grower should endeavor to plant varieties of fruit that ripened at the same time, or, failing that, blanks should be left between the different varieties. They should be planted in such a manner as would permit of one variety pollenising the other. Careful attention should be given to the winter pruning, and each variety treated according to its particular requirements, after which all the prunings should be burnt. He expressed a preference for a crop of field peas, to be ploughed into the soil for green manure. When a large orchard had to be cultivated he considered it advisable to make an early start with the ploughing, in order that there would be time for cross ploughing before the weeds commenced to seed. Should rain fall during the summer months, the opportunity should be taken of cultivating the soil to conserve the moisture. The speaker thought it a good plan to have orchard soils analysed in order that the grower would know what kind of manures to apply to the land. Spraying was a most important work, and should be carried out at such a time that it would check the depredations of the orchard pests. For codlin moth, three sprayings were usually given, but if one wished to have good, clean fruit, an extra spraying would be of considerable assistance. For the man with a large number of trees to treat, there was no doubt that a power pump gave the most satisfactory results. If the careful thinning out of the fruit was carried out regularly he thought there would not be so much undersized fruit placed on the market. At least three trips should be made to the market each week with soft fruits, for unless that was done there was a lot of waste through over-ripe fruit. In the ultimate marketing of the fruit, the careful packing and grading was responsible in no small measure for the successful disposal of the produce. Good fences were also necessary to keep the vermin and trespassing stock out of the orchard. Waste fruits could be utilised by feeding to the pigs or making into cider and vinegar.

REDHILL (Average annual rainfall, 16.79in.).

April 26th.—Present: seven members and visitors.

SHEEP ON THE FARM.—The following paper was contributed by Mr. F. H. Crouch:—First and foremost see that the sheep have an abundant supply of fresh water, and that provision is made for frequent change of pasture. There are a number of different breeds of sheep to choose from, but I think the type and breed that the individual farmer fancies is the one from which he will secure the best results, because he will naturally have more interest in that particular breed. I believe the Merino breed is the one best suited for this district, because a good price can be obtained for their wool, and they do not disturb the fences like some of the other breeds. The Merino ewe crossed with either a Shropshire, Border Leicester, English Leicester, or Dorset Horn ram produces an excellent lamb for the export market. I prefer the last-named ram, as the lambs from that cross mature at an early age. In selecting the ewes, I prefer buying them from some reputable breeder when he is selling aged or cast ewes. The ewes should have plain bodies, large frames, a sound constitution, and strong robust wool. The selection of the Merino ram is a most important matter. The ram should carry a little more development than the ewe, with the folds not too near the chin, as this only harbors seed and other foreign matter. A clean face covered with soft white hair and a fleece with a little more character and strength in it than the ewe's are also desirable attributes. He should have a wide back, with the wool standing erect on it, and strong horns; but one should take notice that they are not growing towards the head. It is impossible for each sheep in a large flock to have equal merits, but by culling all the aged and defective animals a vast difference will be made in the flock. When this work is being done, all sheep that have short stapled wool, those that have poor constitutions, and those that are under the average size should be removed from the main flock. In addition, those that strip at the points when they are not carrying a lamb, those with too many wrinkles, and sheep with fatty or yellow wool should be culled. I believe if the farmer gave more attention to this work he would have less trouble at shearing time, as the wool would be more uniform. An endeavor should be made for lambing to take place about April or May, as the results depend largely upon the season and the management of the flock. See that a special paddock is reserved, and that at least one ram to every 50 ewes is provided. When the ewes are lambing in the open paddock I like to inspect them every three days. If that is done one will rarely lose an ewe. Walk among the ewes very quietly a few times before lambing commences so that they will become accustomed to you, and then when lambing commences they can be attended to without any fear of disturbing them. Any ewes that have had their teats cut off by careless shearers should be culled. Also take notice of any bad mothers, and remove them before next lambing season. Watch for the sheep that are struck by the blowfly, especially lambing ewes, because they will soon neglect their lambs. If a ewe is struck, shear the affected part, and carefully swab with benzine to destroy the maggots. Finally smear with Stockholm tar to prevent a recurrence of the trouble. Sometimes a young ewe will show sufficient kindness for her lamb, but will not let it suck. In this case if the ewe is caught and the lamb allowed to empty the udder there will not be any subsequent trouble, although it will be as well to keep an eye on her for a day or two.

WIRABARA (Average annual rainfall, 18.91in.).

April 23rd.—Present: 15 members.

MANURES.—In a paper dealing with this subject, Mr. W. Bowman said the earth contained large stores of plant food, and while there might be deficiencies of some of those, it was only by thorough cultivation that the foods were set free and made available for the plants. Any deficiencies that existed could be remedied by the addition of suitable manures. As crop succeeded crop, the soil was robbed of a proportion of its plant foods, and what the man on the land should realise was that deep and thorough cultivation would enable him to make the fullest use of the plant foods, and reduce the amount of manure needed in the soil. Stable manure was generally looked upon as a complete manure, and stiff and heavy soils would be benefited by an application of that fertiliser. It was better to spread stable manure over the ground while it was fresh, rather than allow it

to remain in heaps when the rain would wash away many of the plant foods that it contained. Cow manure was considerably richer than horse manure, and was very suitable for applying to light and sandy soils. Fowl manure, if used with reasonable care, was a very valuable fertiliser. To the gardener, a supply of fowl manure would prove most useful. If a practice was made of placing the droppings in a large receptacle, and then spreading them lightly over the soil and raking them into the ground when the plants were approaching maturity, they would benefit very considerably. It was also excellent material for preparing liquid manure.

YACKA.

April 19th.—Present: 20 members and visitors.

SEEDING.—Mr. A. J. McCallum, who read a paper dealing with this subject, said in the majority of districts the farmer, as soon as the work of harvesting was completed, had to prepare for the sowing of another crop. In all probability, summer herbage would have grown on the fallows, and it was important that the weeds should be destroyed without delay. If one intended sowing stubble land it was advisable to burn it off early, plough or cultivate it after the first rain, and harrow it down as fine as possible, thus leaving the ground open to receive the next fall of rain, which would cause the weed seeds to germinate. After a rain of $\frac{1}{2}$ in. or more the harrows should be run over the fallow. That would break down all the clods and work wonders in conserving the moisture. During the months of March and April the seed wheat should be cleaned ready for sowing. All implements necessary for the seeding should be overhauled and put into perfect order, the required superphosphate carted home, and the chaffhouse filled ready for use. In that district, during an average season, the best time to sow the bulk of the crop was between the first of May and the middle of June. If a good rain fell in the middle or end of April, he thought it would be advisable to wait nine or 10 days for the weeds to germinate before sowing. If the farmer had a large area of land to sow for the capacity of his working plant he could make a start immediately after the rain on some of the cleanest fallow, or on the land that he expected to cut for hay. The ground should be cultivated in front of the drill, just deep enough to cut all the weeds, and the wheat drilled down on to the firm seed bed. If the wheat was not all covered it would be necessary to harrow after the drill. If the ground was beginning to dry off, harrowing after the drill would always ensure a better germination. He considered it was advisable for a farmer to always sow seed free from smut, and to always pickle his seed. When pickling clean seed a mild solution could be used, and one would obtain a maximum of germination. The recognised strength of bluestone to use was 1 per cent.—1lb. of bluestone to 10galls. of water. As some land in that district was inclined to wash into gutters he recommended drilling the seed in across the hill slopes. If the ground required harrowing it should be done immediately after the cultivator, and not after the drill. In the discussion which ensued, the question arose as to the correct depth to sow. Mr. W. H. Richards strongly advocated sowing as near to the surface as possible, whether the land was wet or dry. Mr. Fuller disagreed, stating that in his experience he had received splendid returns from fairly deep sowing, and that a farmer was running a risk by sowing shallow when the surface was drying after a rain and cultivation. With regard to pickling, Mr. H. Pelton said he knew a farmer in another district who used nothing but a salt solution, and always had good results. Mr. McLeod also stated that he knew a similar case. Mr. Fuller (the chairman) said he used a quantity of salt in the bluestone solution, which gave a better germination than grain treated with bluestone alone.

GLADSTONE, April 23rd.—A very interesting paper, "The Management and Care of Farm Implements" was contributed by Mr. T. S. Kerin, and a good discussion followed. The report of the delegates to the Mid-Northern Conference was also placed before the meeting.

MINTARO, April 30th.—An interesting evening was spent in discussing various subjects of interest to agriculturists.

**LOWER-NORTH DISTRICT.
(ADELAIDE TO FARRELL'S FLAT.)**

BLACK SPRINGS.

April 20th.—Present: 14 members.

THE AGRICULTURAL BUREAU.—In the course of a paper on this subject, the Hon. Secretary (Mr. C. M. Hudd) said the Agricultural Bureau was an institution that should appeal to all persons who had to derive their means of livelihood from the soil. The Agricultural Bureau brought the farmers into touch with the department of experts who had devoted their lives to one particular phase of agriculture, and it afforded the primary producer an opportunity of making himself conversant with the latest practices and methods of working his holding. The experiments carried out at the Roseworthy Agricultural College and the various Government farms were for the benefit of the farmers, yet he was sorry to say there were many who were content to still perform their work on the same lines as those of their forefathers. The paper concluded:—"The agriculturist who neglects to become a member of the Bureau is losing one of the greatest benefits the State has to offer, for it is an institution that strives to make the work and life of the man on the land as easy as possible, and every farmer should take advantage of the opportunity of becoming a member."

NANTAWARRA (Average annual rainfall, 15.90in.).

April 21st.—Present: seven members.

AFFORESTATION.—Mr. A. R. Herbert, who contributed a paper dealing with this subject, said the question of afforestation was one of vital importance to every landholder, and the farming community found themselves responsible, in no small measure, for the right use or waste of wood and timber in its various forms. During the last decade, timber from local sources had risen to almost prohibitive prices, because in many cases the trees had been wantonly destroyed, until at the present time the demand was greater than the supply. During recent years huge

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TO THOSE WHO HAVE OR ARE ABOUT TO MAKE THEIR WILLS.

A STRIKING INSTANCE OF THE RISK OF APPOINTING PRIVATE EXECUTORS.

"The death of James Gordon Bennett, the wealthy owner of the NEW YORK HERALD, took place not very long ago. Mr. Bennett appointed his personal friend, James Stillman, an executor. Mr. Stillman died before any progress had been made in settling the Bennett Estate.

He had appointed John W. Sterling, the famous New York lawyer, an executor of his estate. Before Sterling could begin work he died suddenly while fishing in Canada.

Sterling appointed James O. Bloss, the New York banker, executor of his estate. But within a few weeks the third death in the chain occurred. The estates of Bennett, Stillman, and Sterling aggregated about 75,000,000dols. (say £15,000,000 sterling).

"Old Colony News Letter."

"From our standpoint the principal lesson is this:—The long interlocking complications that arise after a man's death, during which the families are left to shift the best they may while the tedious grind of untangling his affairs drags through the Probate Court, gives irresistible force to the argument for A TRUSTEE COMPANY AS YOUR EXECUTOR, AN EXECUTOR WHO NEVER DIES OR IS SICK, AND IS FOREVER 'ON THE JOB.'"

"Old Colony News Letter."

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sums of money had been paid by the Commonwealth for imported timber. The waste of timber had been appalling. It was stated that in some of the other States trees that were worth £300 had simply been cut down and burned. He did not think afforestation was a question for the private individual, because he had to wait so many years for a return from his investment. It was a recognised fact that rough undressed timber was almost an essential to the successful working of a farm, and he would like to see some scheme outlined and adopted to meet the demands of the future. An interesting discussion followed, in which it was agreed that afforestation was a question of national importance.

SADDLEWORTH (Average annual rainfall, 19.69in.).

April 23rd.—Present: seven members.

SHELTER FOR STOCK.—In the course of a short paper dealing with this subject, Mr. Ray Hannaford said on many farms in that district, there was very little natural shelter for the stock during the hot and cold months of the year. Small plantations of suitable trees, such as sugar gums and pines, should be planted in each paddock, and securely fenced until they became firmly established. Many people expressed the opinion that the planting of trees in the cultivation paddocks robbed the soil of a certain amount of moisture. That was true, but, on the other hand, one could not easily value the benefit that the stock received from a proper provision of shelter. Such a thing would more than compensate the farmer for any loss of grass or crop that he might sustain. Again, there was no reason why farmers should not build stacks of straw in those paddocks in which they intended to graze the stock during the winter months. The straw stack not only served the purpose of shelter, but in the event of a bad season it could be turned into a very valuable asset as fodder.

EDUCATION ON THE FARM.—The following paper was read by the Hon. Secretary (Mr. F. Coleman):—The advantages of education in almost any occupation will be admitted by all of us. I do not mean by education a one-sided knowledge such as a purely classical education, but rather the acquiring of knowledge and the exercise of the mind in such a way that will develop and render efficient such natural powers as we may possess. In the first place, a good all-round schooling is a great help in laying a solid foundation. If this preliminary work has been well done, the lad should leave the school with a desire to add constantly to the knowledge he has already gained, by a wide range of reading and careful observation as opportunity of travel may offer. We all need to be educated on broad lines to make good use of the free constitution under which we live, and to take our right place as worthy citizens of our country, hence there should not be a narrowing down to some special or technical line of work at an early age. The "humanities" rather than the "technicalities" should be studied up to, say, 17 or 18 years. We ought to aim at being intelligent, well-informed citizens of the State before qualifying as expert ploughmen, beekeepers, or dairymen. And this general knowledge will be a tremendous help in preparing us for a keener fight for existence in the open markets of the world. Given then a good grounding, we shall find it will make our daily work on the farm much more attractive as we learn to transform the knowing how to do a thing into the understanding why we do it. We follow our arable land. Why? We apply superphosphate of lime with the seed. Why? To make the fullest use of the soil resources and contend successfully with our rival farmers all over the world will increasingly need practice hand in hand with knowledge. The one is as necessary as the other. The practical knowledge as to how to do any of the multitude of things we do on a farm will be the better, the more intelligently done, if we grasp the real reason why such different operations are done. I admit that the farmer with an education and a wider outlook, and more extensive range of interests, may not prove the best manual worker or be even as successful a wheat growing farmer as one with a much more limited education. The ploughman of 50 years ago was a skilled man, and with his single or double furrow plough did beautiful even work that is seldom seen now-a-days; but in many cases he was a ploughman and not much more; perhaps hardly able to read or with no desire to do so. His contribution to the State was very limited, and if he lost his job as ploughman he was at a great loss to earn a living. To-day the farm employee needs to have a very fair knowledge of machines, not only how they work, but the principles upon which they are built, and he needs to be capable of doing a good deal of incidental

repair work. Farm life to-day may appeal to the city man as one of ease and plenty, but to those in it, who are fighting to wring a living out of the soil, and contending daily with Nature, it is a life of hopes and fears, sunshine and rain, and with it may be many disappointments and losses. Yet it is a life that has much of the joy of living, and of pleasure with the change of work, the growth of crops, and development of livestock, as the seasons come and go. Though the returns in cash may be small, there is satisfaction in feeling that honest work has been done, and a measure of return that has not been gained at the cost of someone else's loss. I am referring to actual farming, where the contest is with Nature, and the measure of victory is won direct from the soil in the form of primary products, and not to that speculative spirit that enters into the graziers' and dealers' operations, in which one's wits are pitted against another's, and a close watching of the market fluctuations may enable a dealer to make in a few weeks more than he would gain in 12 months by raising produce or stock on the farm. There is practically no limit to the range of education on the farm, for there is much yet to learn in almost every branch of agriculture. To simply mention a list of subjects is enough to show how wide a farmer's education may be. A knowledge of the following will be of real practical value:—English, botany, geology, physiography, mathematics, physics, surveying, chemistry, anatomy, smithing, wool-classing, poultry, beekeeping, dairying, fruit culture, and agriculture generally. Some 25 years ago a local farmer referring to the use of superphosphate, said to me, "Man, it will knock the senses out of the land." A very elementary knowledge of chemistry and soils would have prevented such a remark. A few years later he asked me what fertilisers I would advise him to use on his farm. A little knowledge of astronomy and of the causes of the phases of the moon would dispel the very common remarks one hears about a "dry" or a "wet" moon, and that the weather will not change until we get a "change of the moon," or that flower or vegetable seeds should be sown according to the phases of the moon. The advantage to the country of agricultural education is now generally recognised. The wonderful progress of Denmark may be cited as an instance of what such education does for a country. In this connection I would remind members of the short winter course of lectures for farmers at Roseworthy College this year. This has been especially planned for farmers, and is in keeping with the general trend of agricultural thought in these times. Nor should we confine education to the men folk. There is a growing desire that the mothers and daughters on the farm should take an increasing intelligent interest in all that takes place on the farm. The more the whole family can feel that they are a part of all that goes on, the more interested will they be, and the more encouraged and helped will the farmer himself feel, and the readier will he be to consult others as to what should be done as the seasonal work comes round.

TWO WELLS (Average annual rainfall, 16.36in.).

April 21st.—Present: 15 members and 13 visitors.

THE AGRICULTURAL BUREAU.—"I have no hesitation in saying that there can be no two opinions as to the real value of the Agricultural Bureau," said the Hon. Secretary (Mr. H. W. Kenner) in a paper under the heading "The Benefits to be Derived from the Agricultural Bureau." Any person who gave the work of the Bureau their unbiased consideration was bound to admit that there were many ways in which not only the individual, but the district, was benefited by such an institution. Each Branch, to be a success, should be a live organization, and the members should be regular and punctual in attendance and willing to give a paper or take part in the discussion on the subject before the meeting. The Secretary of the Branch could do much towards the success of the Branch, but he could not do everything, and it was the duty of the members to assist him in every way they could. The younger men especially should be impressed with the advice and help that they could obtain from an active membership of the Bureau. By attending the meetings they were afforded an opportunity of hearing the views and experiences of older men, which often enabled them to avoid such mistakes as might have been made in the past. To the younger men also the Bureau stood as an education for public speaking. The knowledge of the expert officers of the Department of Agriculture was always at the disposal of members. Any query put to those officers was most willingly and ably answered. The reading of a paper at a meeting might in itself appear but a small item, but the discussion

that took place would be of considerable benefit to all present. The fact that Branches were to be found in all progressive districts was sufficient proof of the high esteem in which the Bureau was held by the man on the land. Of chief interest to that Branch and district was the Roseworthy College, where experimental work was being carried out. An annual visit was made by members of the Two Wells Branch to the College, when all had the opportunity of seeing the results of different educational experiments. The annual district conferences were also of considerable educational value, and he would like to see more members avail themselves of the opportunities of attending such meetings. That the press acknowledged the educational value of the Bureau system was made evident by the fact that many papers and journals (not only in our own State) reprinted from time to time articles written by members of the South Australian Agricultural Bureau. The social gatherings of neighboring Branches and combining their meetings, preceded by outdoor sports, such as cricket, &c., was a means of creating good feeling among members, and thereby stimulating them in their work. There could be no doubt that the Agricultural Bureau of South Australia had fully justified its establishment, and to-day was a valuable public institution. A useful discussion followed. The subject, "Pickling Wheat," was also brought before the meeting and discussed.

VIRGINIA.

Present: 12 members and visitors.

INAUGURAL MEETING.—The first meeting of the above Branch was held in the institute on May 4th, when the officers were elected. Matters in connection with the work of the Bureau were also discussed.

LYNDOCH, April 21st.—The meeting was devoted to making arrangements for a vine-pruning competition, to be held during June. The Hon. Secretary (Mr. J. S. Hammat) tabled a sheaf of Sudan grass 12in. high. The seed was sown on March 11th. The question, "Cool Storage," was also discussed.

MALLALA, May 9th.—Mr. A. Pratt (member of the Two Wells Branch) attended the meeting, and delivered an interesting address, "The Value of Experimental Wheat Plots."

SALISBURY, May 3rd.—The Hon. Secretary (Mr. A. U. Urdwin) gave an address, "A Visit to the Sunshine Harvester Works."

WILLIAMSTOWN (Women's), May 4th.—The Poultry Expert (Mr. D. F. Laurie) delivered an address, "Poultry in the Hills," to a large attendance of members and visitors.

WILLIAMSTOWN, May 20th.—Mr. G. Bishop read a paper, "Fencing." The speaker illustrated his remarks with the aid of a model fence, and a good discussion ensued.

YORKE PENINSULA DISTRICT.

(TO BUTE.)

KILKERRAN.

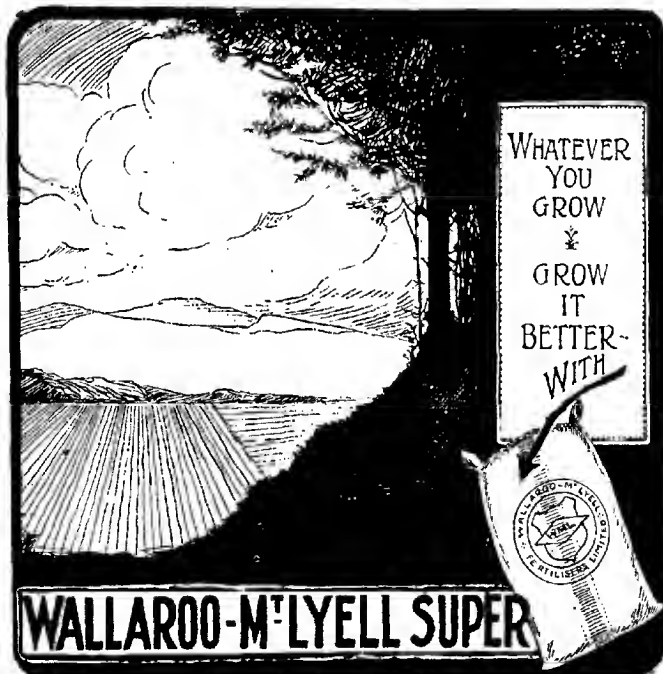
April 21st.—Present: 14 members and three visitors.

SHEEP ON THE FARM.—Mr. E. Gregory contributed a paper on this subject. Sheep, he thought, were the best side line one could have on the farm, and every farmer should possess a number of sheep according to the size of his farm. A small, well-kept flock was more profitable than a large and neglected one, because the stock could always be sold to the butcher or dealer at a profit. All the fences should be kept in good repair, and consist of six or not less than five wires. There should be a plentiful water supply, both in winter and summer. He preferred a large open dam, so that the sheep could drink whenever they desired. He advised keeping Merinos for wool production, and for fat lambs he favored either Lincoln, Shropshires, or crossbreds. The Merino wool would bring the highest price in the market. One of the advantages of keeping sheep on the farm was that they would keep down the weeds; they should be turned on land which it was intended to fallow, and also after fallowing. A good discussion followed the reading of the paper. Members favored a cross between a Merino ewe and Romney Marsh ram for the fat lamb market.

MOONTA (Average annual rainfall, 15.22in.).

April 16th.—Present: 17 members and visitors.

SEEDING OPERATIONS.—In a paper under the heading, "Best Methods of Putting in the Crop," Mr. A. B. Ferguson said the first and all important point in connection was the work of seeding was to have the land properly prepared. All seed wheat should be cleaned and graded at harvest time in order that no time would be lost when the actual time for drilling arrived. He did not favor the practice of pickling the wheat some months before it was required for use. If that was done he believed there was a danger of the grain malting if it was not thoroughly dried. There had always been a good deal of controversy as to the most effective way of pickling wheat—whether to mix it on the floor, dip it in bags in a barrel, or use some kind of modern pickling machine. Some experienced farmers declared that wheat could not be effectively pickled without shovelling it on the floor. For the last 25 or 30 years he had dipped the bags in a barrel, and had never been docked for smutty wheat. Referring to methods of working the soil for that district, the speaker said a cultivator cutting at least from 10ft. to 12ft. should be used. He preferred the spring-tooth implement, as it pulverised the ground and prepared a good seedbed. If it was necessary to use the mould-board cultivator, the work should be as light as possible. It was advisable to drill as close behind the cultivator as possible, in order that the wheat might be covered evenly. If the weather was likely to be showery, it was a good plan to have the super in a dray where it could be conveniently covered. By that means one could have the seed and super close to the drill. Some farmers made a practice



of harrowing behind the drill. He considered the use of the harrows should be determined by the condition of the soil, but if the seed was not covered they should, of course, be used. If weeds were troublesome it would also be advisable to harrow. Again, if the ground was rough the young wheat plants would not stool properly unless the soil was reduced to a better condition. In the discussion that followed, Mr. J. Atkinson favored pickling on a concrete floor. He had pickled in bags with the tube, and had smut, but the floor pickling had always proved very successful. Red hard wheats could be pickled early, but white and soft varieties should be treated immediately before sowing. He favored shallow ploughing for that district, and the use of a spring-tooth cultivator. Mr. H. J. Cadd said when the spring-tooth cultivator was used one had to work the ground too many times. Mr. A. W. Wearing always pickled in a cask, with 1 lb. bluestone to one bag of wheat. That method had always given him satisfactory results. He favored the spring-tooth cultivator, and if worked when the weeds commenced to grow it proved very beneficial to the soil. Mr. T. G. Cliff said it was advisable to have the soil worked down to fine tilth. Care should be taken in the selection, pickling, and grading of the seed. He also favored harrowing the crop when it was about 3 in. high. The disc cultivator proved very successful on his farm. Messrs. G. Page, A. Middleton, R. J. Hughes, and C. H. Martin also took part in the discussion.

DOWLINGVILLE, April 26th.—A paper dealing with the subject, "Care of Farm Harness," was read by Mr. S. G. Ilman, and an interesting discussion followed.

WESTERN DISTRICT.

CLEVE.

April 27th.—Present: seven members.

SEED WHEAT.—A paper on this subject was contributed by Mr. B. J. Smalcombe and read by the Rev. Lawson. The writer considered the question of the purity of the seed of primary importance, and farmers should endeavor to keep the different varieties pure and true to type. The next point was to see that no foreign matter was contained in the seed. Careful winnowing would remove a large percentage of that, but his experience proved that the use of a grader gave a much better sample. When the grain had been run through the winnower a couple of times it procured, to all appearances, a perfect sample, but if the winnowed wheat was then put through a grader, one would be astonished at the amount of small and cracked grains and foreign seeds that had been left by the first machine. It was a waste of time, growing power, and the energies of Nature to grow weeds, drake, and other useless plants when their places, with a little care, could be filled with good marketable wheat. One frequently heard farmers say that the wheat was "good enough to go through," but they should realise the dishonesty of selling wheat, as wheat, when it contained a large and avoidable percentage of foreign matter. Nothing but the best should be the aim of every farmer. The complaint from foreign buyers re Australian wheat was that, as a rule, it was so badly cleaned and contained such a quantity of foreign matter that it did not bring its full value. That was deplorable, and the first step towards the end of improved prices abroad was the use of purer seed. If a store-keeper or a merchant sold the producers inferior materials they who were farmers would be the first to draw attention to the defect; but, without a quailm of conscience, bad samples of wheat were carted to market, and the unfortunate agent was abused if he said the sample was not up to standard. He was an advocate for grading every year all seed sown, whether it was wheat, or barley, or oats, thereby sowing only the best and purest seed. The residue from the grader was not lost. It was saved. It could always be fed as waste grain to the fowls and pigs. A paper, "Gambling with Science," was then read by Mr. Hamilton.

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KOPPIO (Average annual rainfall, 22.40in.).

April 18th.

SHEEPSKINS AND HIDES.—In the course of a short paper dealing with this subject, Mr. J. Newell said it was very noticeable that since a fall in the prices for skins and hides had taken place, many farmers were neglectful of the manner in which they cared for the hides and skins. The farmers in that district were quite aware of the fact that at the present time it did not pay to send hides and skins to the Adelaide markets, but there was no doubt that sooner or later prices would improve, and they could be disposed of at a reasonable figure. It was sometimes thought that if the hides, &c., were kept for any length of time, they became so badly damaged by weevil as to be almost unsaleable, but he believed they could be kept in very fair condition for 12 months if proper care was taken of them. If the sheepskins were washed with sheep dip two or three times during the year, the weevil would not do any great harm to them. With the hides, it would be necessary to peg them out and give them a liberal application of salt, and if kept in a dry place, they would keep for a considerable time. If one desired, the hides could be sent to a tannery and made into leather, which could be used for many purposes on the farm.

MILTALIE (Average annual rainfall, 14.55in.).

April 23rd.—Present: nine members.

WORKING A 900-ACRE FARM.—Mr. P. J. McEachen, who read a paper on this subject, considered that the best method of working a farm in that district was to carry out a system of three years' crop rotation. The block should first of all be divided into paddocks of equal size. If each paddock was made to contain 100 acres, the small areas would be most useful, both for cropping and grazing. Three hundred acres could be sown with wheat, 300 acres fallowed, and 300 acres left for grass or sown with either oats or barley after it had carried the wheat crop. Fallowing was most essential if the best results were to be obtained, for not only did it ensure good returns, but it enabled one to drill in the seed at the right time of the year. The spring-tooth cultivator, he thought, was one of the best implements for working the fallow, and it should be used after every rain to destroy the rubbish and weeds. In the discussion that followed, Mr. H. Degner preferred a four-year system of working a farm. Mr. D. P. Bagnell favored a three-year system and a subdivision of the holding into small paddocks. The twin plough, in his opinion, did not require so much strength to work it, and it did not miss so much ground as the long plough. The Secretary (Mr. G. Smith) considered that the system of working a farm of the size mentioned largely depended on the state of the land. If new land, not free from shoots, the three-year rotation would be an advantage over the four-year system. He expressed a preference for the spring-tooth cultivator for working over the fallow. Mr. T. J. McEachen thought the long plough would not lift as well as the twin when going over stumps. He advocated fallowing the land up well and leaving it until seeding. Mr. C. Degner favored the twin plough for fallowing, and then harrowing directly after. He considered 200-acre paddocks quite large enough for a farm of the area mentioned. Mr. H. R. Jacobs favored the subdivision of the farm into 100-acre paddocks, and would work it on a three-year system. He thought the twin plough turned into a cultivator preferable to the spring-tooth implement. The chairman (Mr. J. Jacobs) thought 200 acres of fallow enough for one man to look after, and preferred a four-year rotation. He used a twin plough for fallowing, and the same implement for working hack the land. He would sow 100lbs. of super to the acre in order that the following crop might be benefited. In reply, the writer stated that he preferred the big cultivator for working over the fallow, as the larger implement enabled one to do the work more quickly.

ROBERTS AND VERRAN (Average annual rainfall, 18in. to 19in.).

May 16th.—Present: eight members and four visitors.


CARE OF HARNESS.—In a short paper dealing with this subject, Mr. C. Kunst said on account of the high price of leather it was to the advantage of every farmer to take proper care of the harness. After any breakage in the leather had occurred, either a needle and thread or copper rivets should be used to effect a repair. When the harness was removed from the horses it should be hung up or put on a rail. If the harness was kept in a room, provision should be made for ventilation, in order that the collars, especially during the hot weather, might

have an opportunity of drying before being again used in the morning. The collars would keep in shape for a much longer period if one made practice of carrying them by the pipe, instead of by the sides. The harness should be overhauled and oiled at least twice a year, preferably just before seeding and again before harvest. He had found neatsfoot oil, with mutton fat and fat black, an excellent mixture for preserving the harness and keeping it nice and soft. The paper brought forward a good discussion, in which Messrs. Masters, Drayton, Cowley, and Videon agreed with most of the points brought forward by the speaker.

WUDINNA

April 30th.—Present: 14 members and two visitors.

CARE OF FARM HORSES.—Mr. J. Butterfield, who contributed a paper on this subject, said a substantial stable should be erected on a sloping piece of ground, preferably facing the east, in order to allow for free drainage and sunlight during the early morning. The stable roof should be high, to permit of plenty of ventilation. He thought it was best to leave the horses loose in the stable, because they would have more freedom and could lie down and rest. Horses should be fed on good, well chaffed, clean oat or wheaten hay, with a liberal amount of corn mixed with it. When they were dry fed for a long period it was advisable to feed a little bran with the chaff. Long hay could be fed for the last feed at night, because it helped to keep the teeth in good order. Horses should be watered before feeding. The watering place should be some distance from the stable, so that the horses could roll if they wanted to. Each horse should have his own collar, and great care should be taken to see that it fitted correctly. Sore shoulders




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could often be remedied, he said, by altering the draught of the harness, but if that should fail to ease the shoulders, a pad could be made by filling an old sock with some well teased horsehair and attaching it to the collar, above and below the sore. A little gall cure or medicated oil applied to the sore each morning and evening would heal it and prevent chafing. Young horses when first being broken in should not be worked too long at a time. If their shoulders were washed with a bucket of cold water, in which a handful of salt had been dissolved, it would prevent scalding and help to toughen the skin. The dandy brush should be freely used in the mornings, especially on the shoulders and backs of the "shafters," to remove dry dirt and sweat. Every farmer should keep a stock of home remedies, and with the aid of a good veterinary book he could often ease a horse when in pain. A good discussion followed the reading of the paper.

YADNARIE (Average annual rainfall, 14.09in.).

April 20th.—Present: 11 members and visitors.

CULTIVATION OF RAPE.—In the course of a paper dealing with this subject, Mr. A. C. Kruger said no sheep fodder would give a greater yield, a more profitable return, or benefit the land to a greater extent than rape, provided it was grown under a proper system of cultivation. On suitable soil it was a good proposition to combine a liberal area of rape in the system of crop rotation. The right class of land should be selected, ploughed early in the season, and thoroughly cultivated, in order to give the plant a good start before the winter weather commenced. If those points, in addition to a liberal supply of manure, the careful sowing of the seed and grazing of the plants, were properly carried out, he thought there would never be a failure of the crop. The ideal soil was that of a rich volcanic nature. It was easy to work, retained moisture, and the seed would germinate, even in dry years, providing that good cultivation had been practised. A soil that could not be reduced to a fine tilth for sowing operations should be avoided. The middle of February was the best time at which to commence seeding operations, but it should be borne in mind that, as the rape seed was very small, and the weather often very hot and dry at that time of the year, the seed should not be left exposed to the rays of the sun for any length of time. From 1in. to 1½in. was the ideal depth at which to sow the seed, and he suggested sowing at the rate of from 4lbs. to 5lbs. to the acre. The most favored method of sowing was to mix the seed with the manure immediately before using the drill. Finally, a light set of harrows, or a hurdle interlaced with bushes, should be run over the land. Where the rainfall was not assured it was best to sow 4lbs. to the acre through the drill, but in places more favored with rain it could be broadcasted at the rate of from 7lbs. to 10lbs. to the acre. In order that sheep might not become blown when grazing, it was advisable to mix with the rape about 1lb. or 2lbs. of white mustard to the acre. The mistake was frequently made of grazing the crop too early. The sheep should not be allowed to touch the plants until they were at least 18in. or 2ft. above the ground. Once the plants had made a good entrance into the soil they grew vigorously, and would make a rapid fresh growth after being fed off. If the sowing was accomplished in good time the plants should be ready for grazing during May or the beginning of June, and could be grazed right through the winter. When the paddock began to have a bare appearance it should be closed up for a week or two, to enable the plants to make a second growth. The subsequent crops were more likely to taint the meat than those received during the autumn, but that could easily be remedied by removing the stock a few days before slaughtering. By the end of November the crop should have been fed right off and ready for the ploughing. The short fallowing effectually destroyed the roots, and left the land clean and in good condition for an autumn crop. Wheat was one of the best crops to follow rape, then several years of hay, peas, or barley, and then a return to the rape. By that system it was possible to convert a poor and unprofitable farm to a rich, clean, and payable holding. Several interesting cases where settlers had increased the yielding and carrying capacity of their farms were then cited by the reader. In the discussion that followed, Mr. J. Deer thought it would be better to grow oats for fodder crops. That crop could be cheaply grown, and then grazed or cut for hay, and the grain stored for times of scarcity. Rape would not be ready before the other feed was available, and as their district had no market for fat sheep they would be working under a big disadvantage.

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Mr. Brown agreed that rape was a good feed, and that it would grow on very poor land. Unfortunately they were handicapped in having no market for fat stock. Messrs. Jericho, Spriggs, and Kruger also discussed the paper.

YEELANNA.

April 23rd.—Present: 12 members.

CARE OF FARM MACHINERY.—Mr. H. Glover contributed a short paper on this subject. Every farmer, he said, should possess a shed large enough to accommodate the implements on the farm. If an iron roof could not be erected, one constructed of straw was a good substitute, and would not be expensive to erect. He thought that the saving effected by placing the machinery under cover would soon pay for the time and labor of erecting the shed. A good discussion followed the reading of the paper.

COLLIE, April 23rd.—Mr. H. Shipard gave an interesting account of a recent trip he had made through the Adelaide hills. Several matters of interest to agriculturists were also brought forward for discussion.

GREEN PATCH, April 18th.—Mr. C. J. Whillas read an article, "Sanitation in Country Places," and an interesting discussion ensued. Mr. Schwerdt mentioned that a number of his sheep were suffering from the effects of eating stinkwort. Members were agreed that if the sheep were put into a paddock that did not contain stinkwort the stock would very soon return to good health.

SMOKY BAY, April 23rd.—The Superintendent of Experimental Work (Mr. W. J. Spafford) attended the meeting, and delivered an address, "Cultivation of the Soil." Mr. Spafford also explained the objects of the experimental plots that were to be established on the property of Mr. E. Lovelock.

TALIA, April 23rd.—The meeting took the form of a social gathering, and various matters of local interest were discussed by the members.

EASTERN DISTRICT.

(EAST OF MOUNT LOFTY RANGES).

BRINKLEY.

April 23rd.—Present: 10 members.

SHEEP.—The following paper under the heading, "Most Suitable Breed of Sheep for the District," was read by Mr. A. W. Richards:—"The most suitable sheep for this district is, in my opinion, the purebred Merino with large frame, plain body, not too wrinkly about the neck, and fairly clean face. The Merinos are not so had on fences as many of the longwools and crossbreds. The crossbreds will get through almost any fence. The Merino will cut 3lbs. or 4lbs. more wool per head than the crossbred, and on an average the wool of the former sheep is worth more per pound. The crossbred or comeback might be more suitable for breeding lambs for export, but I think if we keep a good class of Merino ewe and use the best rams it will pay us better, because when lambs are bred for export it is necessary to grow fodder crops to top them up for market."

GLOSSOP.

April 20.—Present: 10 members.

Mr. Peacock read a paper, "Bookkeeping for the Orchard," and explained how to enter items in the cashbook, journal, and ledger. He advised all settlers to secure a set of books, for a careful record of all moneys paid out or received was an essential to successful business. He offered to assist anyone who needed help to begin their bookkeeping.

LAMEROO (Average annual rainfall, 16.55in.).

April 23rd.—Present: 16 members and visitors.

IMPROVEMENT OF DAIRY HERDS.—The meeting was devoted to a discussion on this subject. It was generally agreed that most of the herds in that district could be considerably improved. The opinion was expressed that whatever breed of cattle the farmer favored, he should endeavor to secure pure-bred stock of the

best type. The cows should be tested, and any that did not come up to the required standard should be fattened and sold to the butcher. It was thought that if several members were to co-operate and purchase a good bull, the expense would not be so great on the individual, and farmers would have an opportunity of improving their herds.

LONE GUM.

April 20th.—Present: 24 members.

VEGETABLE GROWING.—Mr. W. R. Lewis contributed an interesting paper on this subject, after which many questions were asked by the members, and answered by Mr. Lewis. Arrangements for the forthcoming conference of River Murray Branches were also discussed.

MURRAY BRIDGE.

March 21st.—Present: 14 members.

VALUE OF A PURE BRED HERD.—The following paper was read by Mr. J. A. Halliday:—"Since I took up dairying at Murray Bridge I have been astonished at the beautiful country and the wonderful opportunities there are along this grand river for dairying. There are acres of lucerne areas and summer grasses for miles on the reclaimed swamps; and maize grows to perfection, 12ft. to 14ft. high, and 40 tons to the acre is an ordinary crop. I consider the district equal to anything in Australia for dairying. I am sorry that too many scrub bulls are used in the herds, which is a great drawback to the dairying industry. Instead of many of the dairy farmers building up the dairying industry, and making it more profitable and interesting, they are doing the reverse by using mongrel bulls. I will prove to them the value of a pure bred sire. In 1914 I purchased Donald III., and, although I had the misfortune to lose him after 10 months, he left me 11 heifers and one bull calf. All the heifers I kept. On their first calves nine of them milked from 38lbs. to 43lbs. of milk per day. The bull calf I sold for 18 guineas. These heifers are in milk now on their third calf, and they have milked from 52lbs. to 69½lbs. of milk per day, officially tested, and have proved great butterfat producers. The value of these heifers at present on a low market basis would be about 40 guineas a head, but these prices I would not accept. I ask the dairymen, do they not think that bull paid for himself, and that all expenses were cleared shortly after he died? Later on I purchased Revel V. This bull I have had in the herd for six years. I have sold 27 bulls by him for a total of 298 guineas, and I can also account for over 100 heifers by him, of which I am milking 18 in my own herd at present. The results from these heifers, I think, should be pleasing, considering they were not forced with any artificial feeding, and are only milked twice a day. I have two that milked 64½lbs. and 65lbs. milk per day at four years of age; also heifers, two years old, which can be seen in milk now, producing from 32lbs. to 40lbs. of milk per day. For four of these heifers to go to Victoria I just recently refused 300 guineas. The next bull I purchased was Jutland Hero I., and his calves are just beginning to come along. They look very promising. At present I am milking 36 cows, including nine first calved heifers, and am sending each day to the city 110galls. of milk. I have shown you very plainly the results of using a pure bred sire. The stock are not only big milk producers, for they have taken 61 first and second prizes at different shows. A pure bred bull always leaves better stock than dams. Therefore, supposing a low average of 3lbs. milk increase over the mother is shown, and this is a low average, it would result in about 96galls. milk more from one cow. This at 1s. 2d. per gallon equals £5 12s. increase, without any additional outlay in way of food or work. You also have a half bred cow which is of more value if the owner desires to sell in the market. By the use of a pure bred bull, a much smaller herd gives a higher return financially, besides the lessened labor and cost of feeding. One wishing to purchase a pure bred sire should see that he comes from tested stock, and that his ancestors were pure bred cattle, because many sires kept, although they show correct color, throw back to their original cross bred ancestors." In reply to a question regarding the feeding of his stock, Mr. Halliday stated that his herd had only received the feed grown on the swamp, with the exception of a little pollard when the cows showed signs of scouring; he thought a little oat chaff would benefit the herd if it was available. Mr. Halliday said that his cattle were

in better health than they had been in previous districts he had lived in. He attributed this to the green fodder, because in other places they were kept on dry food for a long period of the year. In answer to questions, Mr. Halliday said that the Holsteins could produce more milk from roughage than any other breed, and that they were better able to withstand cold than the Jerseys. In reference to Holstein steers, Mr. Halliday said that they produced a fine grade of meat, and were heavy animals, and contended that whatever breed of cattle a man favored, he should go in for a pure bred bull. Only in this way could he gradually produce a better herd. The sire would soon make his value felt throughout the herd. If maize was fed it should be chaffed, otherwise the cows wasted much of the food. Ensilage was a good fodder during that time of the year when other food was scarce. During the cold weather the cows were fed on ensilage, and they yielded very high returns and kept in excellent health.

RAMCO.

March 22nd.—Present: 17 members and visitors.

The Hon. Secretary (Mr. J. J. Odgers) gave a lecture illustrated with lantern views, "Fruit Growing in a Fresh Fruit District."

GROWING PEARS.—At a further meeting held on April 18th, a short paper was contributed, "Are Pears a Payable Proposition?" was contributed by Mr. W. R. Rogers. The speaker stated that his experience with pear growing showed that pears were not a profitable fruit to grow. On his block he had half an acre devoted to pear trees which were between 9 and 10 years old. The only returns he had had from the trees were five boxes of dried fruit during 1920 and six boxes in the season just finished. Those returns equalled about £12 worth of fruit from half an acre in nine years. The water rates for the same period on that half an acre amounted to £12, which meant that the trees were heavily in debt as regards labor and cultivation. Extra expense was also necessary, because the

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codlin moth had made its appearance, and spraying had to be undertaken. In the discussion Mr. Morgan thought the soil in their district was too light for the successful cultivation of pears. Mr. F. Lewis then read an extract from the *Journal of Agriculture*, "The Orange in South Australia".

BERRI, May 16th.—Mr. F. James contributed a paper, "Fruit Packing". In the unavoidable absence of Mr. James, Mr. Phillips read the paper, and illustrated various methods of packing as outlined in the paper. The election of officers also took place.

KINGSTON-ON-MURRAY, May 12th.—The manager of the Berri Experimental Orchard (Mr. C. G. Savage) delivered an address, "Correct Methods of Tree and Vine Pruning."

MOOROOK, April 22nd.—Capt. S. A. White, C.M.B.O.U. (member of the Advisory Board of Agriculture), visited the Branch, and delivered a lecture, "The Economic Value of Our Native Birds," illustrated with lantern views.

PARILLA WELL, April 25th.—The meeting was devoted to a discussion on matters relating to the past harvest. The next three meetings of the Branch will be held on the following dates:—June 20th, July 18th, and August 15th.

ROSY PINE, April 26th.—In the absence of a paper, a member opened a discussion on "The Destruction of Foxes," after which the following resolution was carried:—"That members of this Bureau make a united effort to poison foxes from April 20th to May 25th."

TAPLAN, April 30th.—An interesting article was read by the Hon. Secretary (Mr. P. R. Hodge), "Principles of Nutrition," and an interesting discussion followed, in which Messrs. A. and E. Schulze and F. Barton took part.

TAPLAN, May 11th.—The Assistant Dairy Expert (Mr. H. J. Apps) visited the Branch, and delivered a lecture, "The Dairying Industry."

YOUNGHUSBAND, April 21st.—Mr. Hallett read an interesting paper, "Odds and Ends," and a good discussion followed.

SOUTH AND HILLS DISTRICT.

ASHBOURNE.

April 25th.—Present: 16 members and visitors.

"ECONOMY ON THE DAIRY FARM."—Mr. George Sissons read the following paper:—"Every landholder should know what stock his farm will carry; but if, through any unforeseen circumstance, there is a food shortage, it is only under exceptional circumstances that it will not pay to buy fodder, because there is very little profit in half-starved stock, and perhaps to no other animal does this apply more than to the dairy cow. If she is worth milking, she is worth feeding, and much as we desire good breeding, it is not of much use without a generous food supply. Attention in this respect should first be given when she is dried off. I expect most people have found to their cost that for every pound we might have saved in her keep at that time, we have lost two in her lactation period. She should be provided with the run of a good grass paddock or sufficient food to keep her in marketable condition; not fat, for that is inviting calving and udder troubles. Of the latter, most of them could be avoided by milking the cow in the ordinary way for about a week before calving. As to feeding when in milk, considering the price we get for milk, it will not pay us to use concentrated foods to anything like the extent of the city dairymen; the only time it may be necessary to use them is in the late autumn and winter. In this district sufficient suitable food can be grown on the farm for the rest of the year, provided that we are not keeping 10 cows where only seven or eight should be kept. In the first place, plenty of hay should be grown; oats for chaff and meadow hay for feeding loose. The oats should be cut on the green side, and left for two days before stooking to be sweetened by the sun. The meadow hay must be cut when green, and raked as soon as it can be pulled together. If the weather is hot, leave it in the rows for a day, then cock, and if the weather keeps favorable, cart in a week's time. The object is to retain as much weight and color as possible. On no account allow it to become bleached, or it will be useless, and if properly harvested I find

that cows and horses prefer it to any other hay. If well covered, it will keep in good condition for several years, as mice do not interfere with it. In the spring the natural feed will suffice, but for the summer, fodder crops must be grown. Some suitable for this district are lucerne, maize, kale, sorghum, millet, and Sudan grass. No doubt lucerne, where water is close enough for the roots to reach it, or where irrigation can be practised, is the best of them all; but on most of our farms I think some of the others will be found more profitable. For a number of years I have found a difficulty in supplying the needs of cows during the interval between the drying off of the natural feed and the time that, say, the maize crop is ready; but I have now proved that Sudan grass fills that want. Japanese millet is very good, but will not stand the grazing and drought so well. Sudan grass can be sown when danger from frost is over, say, from the middle of October up to the end of the year. I have some 6 ft. high, sown at the beginning of January. The ground must be worked to a fine tilth. The seed can be mixed with the manure and sown through the drill, but it should be prepared in the paddock and sown straight away, as there is danger of the manure affecting the germination. Seven pounds of seed to the acre will be sufficient, setting the drill as shallow as possible. Two small paddocks should be sown, so that the first used can be making new growth while the second is being eaten off. It is the best milk and butter producing fodder I have tried. Maize is not to be compared with it in this respect, and although I consider this crop a good standby, I never think it fully compensates one for the labor expended. I have not had much experience with sorghum, but it has this advantage over maize—that it will stand feeding off and thrive on drier ground. Chou moellier is an excellent milk producer, and cows are fond of it. It is easily grown, very hardy, and produces a lot of fodder if the leaves are pulled and fed; but unless one has children to pull them it takes up too much time. When I have a crop of it I usually wait until it is full grown, and then cut the plants off close to the ground. The cows will eat stem and all, and, if it rains, a good second growth is received from the stumps. For winter green feed, if the crop is to be cut, sow two parts of barley and one of rye or King's Early wheat; if for grazing, oats, as they stand the feeding off better. I make a practice of scarifying the pea ground in the autumn, as soon as the weeds have started after the first rain, and then sowing 1½ bush. of oats to the acre. The crop can be fed off until September, then allowed to stand for hay. All these fodders are good, but there will not be much profit in any of them if they are not grown in sufficient quantities to fully supply the cows' needs. Growing a quarter-acre of maize to supply eight or 10 cows is only playing with the business. As grazing plays the most important part in farm economy, the holding should be divided into small paddocks, as cattle greatly appreciate a change of feed, and two or three small areas should always be available for that purpose. The fencing is expensive, but one is amply repaid for the outlay. For cattle, I prefer a four-wire fence, the top wire plain, the second barbed, and the third and fourth plain. The barb should go through the posts so that it can be tightened up at any time. If strained occasionally, the wires will not rust through in the posts, and one will have no roguish animals worrying the fences. With regard to breeding our own stock, it seems to me there are not enough reliable bulls to go round, so that the man with the biggest bank balance has the best chance of getting one, and even if they were plentiful, I doubt whether there are many farmers who have the necessary aptitude to use them intelligently. For the large dairyman who has the necessary second-grade grazing to rear young stock, breed your own cattle every time; but for the smaller men, who have the necessary facilities for keeping the heifers, several neighbors should purchase a bull between them; one man keep him, and the others pay him in money or in kind for his trouble. But I am of opinion, however, that, where only 10 to 15 cows are kept, it will pay better to buy springing heifers, or cows coming with second calf. If it is decided to rear calves, a small paddock supplied with water should be made convenient to the separating room, and the calf fed twice daily with milk straight from the separator. Care should be taken to find out how much the calf can conveniently take without gorging itself. Feed regularly, gradually increasing the supply as the animal grows older. If that is done there should be no trouble, as most of the calf's ailments are to be traced to erratic feeding. A week or two before weaning, which should be at about five months old, turn the animal into a grass paddock and give milk once a day. After that, treat much the same as the dry cows. If a Jersey, put her to the bull when 18 months old; if a Shorthorn breed, one year

and nine months. Pigs, the adjunct of the dairy, except for a change in the breeding stock occasionally, should all be raised on the premises, and as with the cow, its requirements should be met by the farm, except that it will always pay to use a little pollard when finishing off the porker and baconer. Crops that can be grown for fattening are English barley and peas, while mangolds, lucerne, kale, and barley can be raised for the winter feeding of stores. The number to be kept will depend on the estimated milk supply, but one should aim to breed as many as can be conveniently kept until they are eight weeks old, when they should be turned out for three or four months on good grazing or its equivalent, and with the milk, they should then be ready for topping up with grain and pollard. This will apply more to the autumn, for the spring pigs, for the natural grass with the milk will be sufficient until the pea crop is ready. I prefer that crop to barley, because it improves the grazing capacity of the land, and the grain is more easily picked up by the pigs. One of the most important things in pig-raising is to provide the animals with a dry sleeping shed. The floor should be of wood; on no account allow them to sleep on wet straw, as that has been responsible for the loss of thousands of pigs. In the cold weather no more than seven or eight pigs should be allowed to sleep together. As to horses, no more should be kept than is absolutely necessary to work the holding. Implements that I consider necessary are two ploughs, one each for field and garden work; harrows, roller, drill, scarifier, garden cultivator, grasscutter, chaffcutter, and trolley and dray for transport, and a small set of tools, including vice, crowbar, hack saw, wrenches, groundworkers, etc., also a few assorted hobs and nails. I do not favor a blacksmith's plant, as I consider that a business in itself. Our seed requirements should be purchased, and of the best quality procurable. As those who manage the business are the main factors in its prosperity, everything that contributes to their health and efficiency contributes to the prosperity of the farm, and a fortnight's holiday every year will be found a good investment in this respect. In conclusion, if we bear in mind that the farm was made for man, not the man for the farm, there will not be so much talk about our young people wanting to leave the land."

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CHERRY GARDENS (Average annual rainfall, 35.03in.).

April 19th.—Present: 12 members and 15 visitors.

HOMESTEAD MEETING.—The monthly meeting of the Branch was held at Mr. C. Ricks's homestead, and an interesting and instructive afternoon was spent inspecting the fruit and vegetable gardens. Afternoon tea was provided by Mrs. Ricks, and the meeting concluded with a discussion on subjects of local interest.

HARTLEY (Average annual rainfall, 15in. to 16in.).

March 23rd.—Present: seven members and six visitors.

HOMESTEAD MEETING.—The monthly meeting of the Branch was held at Mr. J. Stanton's residence, and after the formal business had been transacted, members participated in singing and games. The visitors were then entertained at supper by Mrs. Stanton.

At the invitation of the Murray Bridge Bureau, a number of members took part in an enjoyable trip to Mypolonga on April 16th.

At a further meeting, held on April 20th, the Dairy Expert (Mr. P. H. Suter) visited the Branch and delivered an address, "The Dairying Industry".

MEADOWS (Average annual rainfall, 35.52in.).

April 20th.—Present: seven members.

COLT BREAKING.—In a paper dealing with this subject, the Hon. Secretary (Mr. H. B. Michelmore) said a work that had to be undertaken on all farms at intervals was the breaking of farm colts. No hard and fast rule could be laid down that would apply to every horse, because different animals were of different dispositions. There was a marked difference between the farm and the station bred colts. The former were generally bred from mares in constant work on the farm, hence they were often stable fed, and the foal became so accustomed to the person feeding and harnessing the horses that the foal had no fear, and soon became as quiet as its mother. Especially would that be noticeable if the person was fond of horses, because he would often caress the foal, and a confidence would be established between them. As a rule there was no trouble in catching a colt that had been reared in that way. Many of them would allow the person they were accustomed to to place a rope around their necks. If the foal persisted in turning its rump towards one, and showed any inclination to kick, he should be punished with a severe stroke with a whip. All foals should be taught to tie up and lead before or at weaning time; then they would not give nearly the trouble when brought in for breaking. Colts that were of a wilder nature and had not been handled when foals, required different treatment. It was first necessary to establish confidence between the master and the colt. The first and most important convenience was the erection of a good substantial yard where the animal could be caught without the least danger of escaping. A good handy whip was needed with a fairly long handle, but it should not be used unnecessarily. When the animal found he could not escape he would very soon turn his attentions to the operator. On no account should the colt be struck whilst it was facing one. When a person was able to stand quite close to the colt it should be spoken to kindly and rubbed along the back and neck with the whip handle or a bamboo stick. The catching could be simplified to a very considerable extent and carried out more expeditiously by the use of a crush pen, but few yards had that convenience. The old method of catching with a rope on a pole was usually adopted. When the rope was in position on the animal's neck it should be allowed to run around, which gradually tightened the rope until the colt was made to face its master. The rope should be kept taut, and the animal approached from the near side. With one hand on the rope and a headstall in the other, rub the headstall about the colt's nose and ears until it became accustomed to the feel, and very little difficulty would be experienced in getting it in position. The mouthing bit could then be attached to the headstall, and carefully placed in the colt's mouth. From experience he had found that the best method of mouthing a colt was to rein him back to a surecircle with a fair pressure, care being taken to see that both reins were of equal tightness. The colt should then be left a few hours in the yard in order that it might become accustomed to the feeling of the bit. It should then be induced to follow the operator about the yard, and with a little perseverance and patience it would soon understand what was required. After a time the tie back reins could be slackened a

little, the long reins attached, and the colt run out in a small paddock, first with a rein on the near side and then the off side, and finally driven with both reins. Should the animal attempt to bolt allow one rein to become loose. By keeping the other rein tight, the colt could soon be brought under command; a little extra time spent in mouthing a colt was time well spent. After that operation he considered it a good plan to drive the colt to a substantial post in the yard and tie him to it, fairly short and not too high. One should make sure that the rope was strong enough to hold him, because if the colt was allowed to break loose and get away the first time it would try to do so on other occasions. When it could be driven with ease anywhere in the open, the collar should be put on and the colt hitched to a log to teach it to pull. After that operation had been repeated a few times the animal would be quite safe to put in harness.

MILANG.

February 12th.—Present: 29 members.

OUR DISTRICT AND ITS CAPABILITIES.—A paper bearing the title "Our District and Its Capabilities" was read by Mr. A. D. Matheson. The main argument of the paper was to the effect that the district was adapted to mixed farming. He mentioned instances illustrative of the possibilities of fruit and vegetable culture. Lucerne could be grown successfully on the sandhills of the district, but the cost of raising water had up till the present militated against the growth of that fodder. Realising that a large percentage of the soils of the district was of a sandy nature, the question of pumping water appealed to him as one of the main factors toward making the district a flourishing one. That resolved itself into the question of the provision of cheap power. A suggestion he offered was the establishment of a central power house, driving electric motors, for although the cost would be greater than the suction gas plant, the convenience for all purposes would more than counter-balance the cost. Other matters of local interest were discussed at length in the paper.

MILANG.

April 9th.—Present: 24 members.

"MILKING MACHINES."—Mr. D. J. Turvey, who contributed a paper dealing with this subject, said in days gone by the dairymen had always had the greatest difficulty in finding and keeping labor on his holding, and he believed one did not have to look very far for the reason of that. Milking and attending to the cows in the summer, when the flies worried both the animal and the milker, and also in the winter, when it was cold and wet under foot, was not pleasant work. Under such conditions they should not be surprised if it was hard to get suitable labor. Neither should they expect the women folk on the farm to perform such work. The advent of the milking machine had made the work more congenial and more economical. Dairy farming with the aid of a mechanical milker revealed very clearly the advantages of using up-to-date machinery. One often heard adverse criticisms regarding the machines, but the same could be said of practically every innovation that had been introduced into agriculture. The milking machine was past the experimental stages, and the rapidity with which it had been adopted by leading dairymen in the State was conclusive argument that it had come to stay. In many cases it might prove profitable to adopt machine milking in dairies of 12 to 15 cows, as it would make the owner less dependent upon and almost entirely independent of hired labor. The actual saving in the case of milking by machines over hand milking was, however, greater in the case of a large herd than with a small one, and would in general be in proportion to the size of the herd. The modern machine was so simple that a boy could operate it; in fact, there were many instances where girls in their teens were milking herds with no other assistance than the milking machines. It had been proved beyond doubt that cows operated on by the machines milked longer and better than when milked by the average hand milker. In addition to that, less than half the labor was required. The machine in numerous cases released other members of the family to go on with the house work and other duties on the farm. The machine was natural in its action, being a combination of hand milking and calf sucking. Cups were attached to all four teats, and it milked alternately two at a time, and, as in hand milking, its pulsation produced a steady flow of milk. Being mechanical in

its action, it was more regular than hand milking, and, furthermore, the constant massage of the inflation on weak teats very often restored them to normal conditions. The operation of the teat cup was so natural that the cows were contented and never required leg-roping; they also readily gave down their full supply of milk, and only left a minimum quantity for the stripper. Most of the standard machines were made so that they were very easily cleaned, as cleanliness was very essential where milk was concerned. The milk was sealed against contamination from the time it left the cow until it was delivered into the separator. That was certainly far more sanitary than would be the case with hand milking. At the present time he was using a 3 h.p. kerosine engine; the kerosine engine was to be recommended on account of the greater economy in running. On two separate running tests, each over a period of half an hour's milking, he was able to milk from 12 to 14 cows, using less than 1 pt. of kerosine, which was less than 2d. per milking. He had also tested another 4-unit machine, and it milked 30 cows in half an hour on 1 pt. of kerosine, which was less than the rate of 10 cows for 1d.

CHERRY GARDENS, May 17th.—Mr. C. H. Beaumont (Government Orchard Instructor and Inspector) delivered a lecture, "Orchard Pests and Means for Combating Them." An interesting discussion followed, and the speaker replied to a number of questions.

CLARENDON, February 22nd.—Mr. E. Scrymgeour contributed a most interesting paper, "My Experiences on a Farm in Germany."

CYGNET RIVER, April 21st.—Mr. W. T. May contributed a paper, "Selection and Care of Horses on the Farm." An extract from the *Journal of Agriculture* was also read by Mr. A. J. Weatherpoon.

CYGNET RIVER, May 19th.—The Hon. Secretary (Mr. J. J. Osterstock) read an article dealing with "Co-operation," and a good discussion followed.

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IRONBANK, April 23rd.—The monthly meeting of the Branch was held at Mr. W. Slater's residence. Mr. Tucker brought forward the question of the advisability of securing a drying plant in order that the waste fruit of that district might be utilised. The question received the favorable consideration of members, and Mr. Tucker was instructed to make full inquiries regarding expense, cost of operating, &c., of the plant.

MACGILLIVRAY, April 19th.—The subject, "Diseases of Potatoes," was brought before the meeting, and an interesting discussion followed. Several other items of local interest were also considered.

MORPHETT VALE, April 21st.—The Chairman (Mr. A. Anders) introduced the question as to whether it was advisable to turn sheep into a vineyard some time before the leaves commenced to fall. Members were of the opinion that it was best to wait until the leaves dropped off the vines before allowing the stock the run of the vineyard.

PORT ELLIOT, April 23rd.—The Hon. Secretary (Mr. H. B. Welch) read a paper, "Tree Planting". Several items of local interest were also brought before the meeting.

SHOAL BAY, April 21st.—The Hon. Secretary (Mr. Geo. Barrett) read a paper from the *Journal of Agriculture*, "Principles of Cultivation," and an interesting discussion followed.

SOUTH-EAST DISTRICT.

LUCINDALE (Average annual rainfall, 23.32in.).

April 23rd.—Present: 10 members and visitors.

BREAKING UP SWAMP LAND.—"The class of land that I intend to deal with in my paper is that on which cutting grass, broom bush, ti-tree, and rushes are usually to be found growing," said Mr. G. W. Langberg in a paper under the heading, "Breaking Up Swamp Land and the Best Summer Fodder to Grow on It." Continuing, the speaker said the first work to carry out was the ploughing. That should be done with a disc implement. After ploughing, the land should be allowed to dry, and the bushes then burnt off. Next, a good set of harrows should be used to bring the soil to a nice condition. He was in favor of mixed fodders for sheep feed. Mangel wurzels did exceptionally well on the swampy land. If there was any high land on the block it was a good plan to put that area under cereals, and after the crop had been taken off the sheep could be allowed to graze on the stubble. The lower portion of the paddock could be left until after the winter, and when the land became dry it should again be ploughed and prepared for a crop. When sowing the seed, he suggested using every other drill. Mangels could be sown at the rate of 2lbs. or 3lbs. to the acre, with about 1½lbs. of rape mixed with the super. He had tried maize, but it would not stand so much feeding off as other crops. Providing the mangels and rape were not fed off too closely, one could easily secure two seasons' grazing from them. Chou moellier made good growth, and was relished by the stock, but to receive the best results the animals should not be turned on to the crop. Lucerne had also been tried, but he was convinced that one obtained the best profits from those crops that could be grazed by the stock. In the discussion that followed, Mr. H. Langberg said he had planted three acres with Sudan grass, and it had made splendid growth. The crop reached a height of 7ft. with as many as 120 stalks on one stool. Mr. McInnes said he had sown a small plot with 3lbs. of Sudan grass. He had cut the first growth with the binder, and after it had been thrashed he had obtained 148lbs. of seed. The straw had been chaffed and fed to the cows, and the second crop was now ready for cutting. In reply to an inquiry as to whether Sudan grass was poisonous to stock, Mr. Dow said tests had been carried out which showed that the first growth after cutting was likely to injure the stock if they were allowed to graze it off when they were very hungry.

MOORAK.

April 21st.—Present: 15 members.

THE DUST NUISANCE.—Mr. A. Ferguson, who contributed a paper on this subject, expressed the opinion that much of the trouble that was caused by dust in their district was due to ploughing the land in the summer. The mainstay of the farms (the

women folk) had to bear the brunt of all the inconvenience caused by the dust. A good deal of the nuisance, in his opinion, could be avoided by ploughing a little later; say, after a good rain. The green feed paddocks cultivated by the settlers in most cases only required a few days' work, and could be ploughed after the rain, and would do just as well as those that were ploughed and left at the mercy of the sun. That would not apply to hard clay or stiff black soil, but to the volcanic soil more harm than good was done by ploughing early. His plan was to wait for rain, use super, and one would have better results, and not so much dust. In discussing the paper, Mr. A. H. Kilsby thought that the ploughing on the loose ground could be left until after the first rains. Mr. Palamoutain thought that the early ploughing was a great help to the ridding of sorrel and other weeds. Mr. J. Nicholls also spoke in favor of the early ploughing, which augured well for the eradication of sorrell and blue root. Mr. H. Tarrant also spoke on the subject by stating that he could not altogether agree with Mr. Ferguson's views of leaving the ploughing for green feed until after the rain. By doing so settlers were running a great risk of robbing the land of its grasses, which were so prominent on the settlement. The ploughing of the land after the rain, when the seed was beginning to shoot and grow, was robbing the land of the undergrowth, which was such a help for the feeding of milking cows during the summer and winter months.

CATTLE LICK.—The Hon. Secretary (Mr. H. S. Tarrant) then read a recipe received from Professor Perkins of a lick for the cattle during the dry months of the year:—Coarse salt 20 parts, slaked lime 10 parts, superphosphate 5 parts, sulphate of iron 1 part.

TANTANOOLA.

March 19th.—Present: 12 members.

AFFORESTATION.—Mr. T. Kay (Forester of the Mount Burr Forest) read the following paper:—"Science has proved that the exhalations of vegetation, and the atmosphere and general effect that they produce, are necessary to the health and



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life of animals. This has been proved not only in the laboratory, but by careful observation in nature itself. We find, for instance, that desert winds such as the Sirocco and Simoon, which rise from places where neither animal nor vegetable life exist, produce in both animals and vegetation extreme lassitude and even death. No such winds as these can come from forest covered regions; but, on the other hand, we find that winds that rise from such sources are invigorating and refreshing. Thus, heavily covered forest regions in their physical as well as mechanical effects, are much more powerful agents than areas that are covered by only minor forest growths, though even the meanest contribute their growth, and when we plant a tree we contribute to the great object of hygienic forestry. In commercial forestry, or the production of wealth, we have a wide range of studies, first in discovering our requirements, and then to find out how to provide them. Under this heading, and bearing on it indirectly, may sometimes also come other particular branches; when large areas have to be maintained for protection, health, and beautification; and primarily for monetary profit incidentally. Apart from them it is safe to say that if we so neglected this business as to have to import all our forest products, both in timber and various other forestry by-products, we would have to pay out such large sums of money that it is doubtful whether the profits on our staple products would cover the amount. Commercial forestry must largely be the business of the State or nation, but it is the business of every member of the State to give their Government that moral support that will enable it to carry out this great work to its fullest extent. In a district with such vast commercial forestry possibilities as the South-East, we are sadly neglecting our true interests by allowing this apathy to remain. Apart from the benefits that each member of the farming community would derive through the influx of population, it is possible that many a waste corner could be profitably occupied in timber cultivation if there were large definite State enterprises in his neighborhood to enable him concurrently to dispose of his produce. My experience leads me to think that there are few parts of South Australia (if any) that offer such advantages for extensive softwood culture as the South-East. We possess large tracts of cheap land with easy accessibility and good sea outlets, good rainfall, and a suitable climate. I would like to make a few remarks about trees that we might safely plant in our district for the purpose of beautifying our farms. It is advisable to avoid planting Remarkable pines, red gum, and sugar gum on limestone, or even on the alluvial flats with marley bottoms. In such places we can plant Aleppo, Maritime, Stone, and Austrian pines, tuart and S.A. blue gum, and probably red ironbark, and among deciduous non-suckering trees I have seen fine specimens of black poplar and English elm growing on the Millicent Flats. As soon as we get away from lime and marl, providing the drainage is good, I know of nothing to beat Remarkable pine and sugar gum. I had never seen red gum thrive away from a sandy loam, overlying good clay bottom or along water-courses, and never on limestone. There are also many minor forest trees and shrubs that suit our surroundings, and there are, no doubt, many fine trees remaining to be discovered, but meanwhile we have a few safe lines to go on with." An interesting discussion followed.

FRANCES, April 2nd.—Matters in connection with the forthcoming Conference of South-Eastern Branches were brought before the meeting and discussed. Notice was received from Mr. M. Herald that at the June meeting he would contribute a paper, "Items of Interest to the District."

KEITH, April 30th.—The question, "Marketing of Wheat," was brought before the meeting, and an interesting discussion followed.

PENOLA, May 9th.—The report of the delegates to the South-Eastern Conference (Messrs. Patchell, Clifford, Hinze, and Kidman) was received and discussed. Mr. Hinze read a paper dealing with the attendance of members at meetings of the Bureau. A discussion followed, and members were urged to attend the meetings more regularly.

SANDALWOOD, April 23rd.—Messrs. Oakshott, Page, and Hood were selected as nominees to attend the Winter School of Instruction at Roseworthy Agricultural College. Other matters of local interest were also brought before the meeting for discussion.

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Notice is hereby given that in future no applications for land, or for transfer, sublease, of mortgage of Crown leases or agreements will be approved to unnaturalised persons of any nationality, or to naturalised persons of enemy origin unless the consent of the Honorable the Attorney-General of the Commonwealth be first obtained by the parties making the application.

Where any doubt as to nationality exists, it will be necessary for certificate of birth or naturalisation papers to be exhibited.

The same principle will apply to land sold by auction.

OFFICIAL LIST OF LANDS OPEN.

The attention of intending applicants for land is directed to the Official List of Lands Open, which may be seen at the principal Post Offices, and copies obtained at the Office of the Secretary for Lands. The List shows the Areas, Localities, Prices, &c., of the Sections available and the conditions under which they may be applied for.

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Commissioner of Crown Lands and Immigration.



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